A STUDY OF THE HEALTH STATUS
OF
RESIDENTS OF THE JUNCTION TRIANGLE
TORONTO

Final Report

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BACKGROUND

The Junction Triangle is a residential-industrial segment of western Toronto largely demarcated by the railway lines that helped to spur industrial development in the area during the past 100 years. Many of its residences date back to the 1920's, and many of its 24 industrial plants have been operating for over 25 years. The Triangle encompasses an area of .27 square miles, had 6,373 residents when the 1971 census was taken, and has been the site of high industrial productivity since the 1940's.

Throughout the 1970's, residents filed numerous complaints about noxious odours drifting from the factories into the residential areas or emanating from the storm sewers as a result of alleged illegal chemical dumping into the sewer system. Health-related complaints included: frequent colds, coughing and sneezing, eye irritations, skin rashes, breathing difficulties and fatigue. The possibility of long-term health effects resulting from exposure to the chemical compounds used and produced in the area is a continuing major concern of the residents.

A non-random survey of 547 households, conducted by the Junction Triangle Anti-Pollution Committee in the summer of 1979, indicated that 73.9% of the residents interviewed thought that pollution was a moderate or serious problem and that 39.1% of them suffered from frequent colds, 47.3% from coughing and sneezing, and 39.5% from eye irritations. It must be noted, however, that: 1) the survey was conducted by a special interest group, 2) the questions were vague, 3) the non-response rate was not given and 4) there was no comparison group.

A study undertaken by Dr. Philip Miller of the University of Toronto in the spring of 1981 focussed on school absenteeism which is considered to be a proxy for ill health. A significant difference between the rates of

absenteeism at Perth Avenue Public School (in the Junction Triangle) and in the rest of the city was found ($p < .0001$) but the reasons for the absenteeism were not examined.

Pressure from the residents prompted the local Board of Health to recommend, in November 1979, that the Medical Officer of Health exercise the authority delegated to him by the Public Health Act to investigate conditions in the Junction Triangle area related to health problems. As a consequence, some analyses of existing natality and mortality data were performed and the outline of an epidemiologic study was prepared.

In 1980, the Ontario Ministry of the Environment monitored air quality in the Junction Triangle area during a two-week period in response to concerns expressed by the residents. The highly sophisticated Mobile Air Monitoring Unit (MAMU) that Environment Ontario used for this purpose can measure preselected complex industrial chemicals in extremely low concentrations. Monitoring of the Junction Triangle area bounded by Bloor, Dupont and Dundas Streets and Lansdowne Avenue (the Junction Triangle) began on July 17 and ended on August 1, 1980. Of the 18 chemical substances monitored in the survey, three (1, 2, 4-trimethyl benzene; 1, 3, 5-trimethyl benzene; and ethyl acrylate) were detected at concentrations slightly above normal urban levels. Trimethyl benzenes are fractional components of the petroleum distillates used as solvents throughout the paint and coatings industry and ethyl acrylate is a liquid monomer noted for its very low odour threshold level; they were found in the air in the immediate vicinity of the Glidden Paint Company and the Anchor Gap and Closure Corporation of Canada Limited.

The report* on the monitoring exercise stated, «the air levels of the compounds which occur in the Junction Triangle area are all well below those specified for occupational exposures, and consequently one would not expect to see any obvious health effects. It is not possible to state whether minor decrements to health could result from long-term residence in such an environment, as small changes in health which might result over long periods of time would be difficult or impossible to distinguish from similar changes which accompany the normal aging process. In the light of present knowledge it appears that unpleasant odours and sporadic episodes of irritation of the eyes and other tissues may be the only detectable effects. The more these can be controlled, the less likelihood there would be for the possibility of long-term health effects.»

Subsequent to the findings of the air monitoring program, certain industries were required to undertake odour abatement measures; some are now installed and operating and the courts have been used for enforcement in some instances. Even with regular air quality surveillance and compliance with requests for the installation of technically feasible emission controls, residents living in close proximity to the manufacturing operations will probably continue to experience the occasional incidents of unpleasant odour.

Residents' complaints, a chemical spill on April 6, 1982, and a general increase in the awareness of the influence of the environment on health culminated in the Mayor's Task Force on the Junction Triangle recommending, on September 24, 1982, that an epidemiologic study be

* Summary and Interpretation of the Environmental Study of the Junction Triangle Section of the City of Toronto, Ontario Ministry of the Environment, May 3, 1981.

undertaken. Dr. W.O. Spitzer, Chairman of the Department of Epidemiology and Health of McGill University and Director of the Division of Clinical Epidemiology, Montreal General Hospital, was appointed Principal Investigator.

PURPOSE OF THE STUDY

The purpose of the study is to determine whether the residents of the Toronto Junction Triangle experience adverse health effects more frequently than do: i) residents of a demographically similar but minimally exposed (non-industrialized) area of the City of Toronto, and/or ii) residents of areas adjacent to the Junction Triangle.

Specific Research Objectives

The specific research objectives of the study are to determine the frequency of:

1) health problems (some of which may be associated with the type of urban industrial pollution found in the Junction Triangle), by tract;

2) disability days (days spent in bed), by tract;

3) debility days (days of reduced activity), by tract;

4) absenteeism from normal daily activities, by tract; and

5) discomfort (measured by complaints of symptoms alleged to be associated with the type of urban industrial pollution found in the Junction Triangle), by tract; and to compare:

6) the duration of each of the above findings in each of the study tracts; and

7) the severity of health effects found in each of the study tracts.

Assessment of cancer incidence and adverse reproductive outcomes was originally planned but the cancer incidence component could not be investigated because the Ontario Cancer Research and Treatment Foundation had not yet tabulated the data and the reproductive outcomes component has already been conducted by the City of Toronto Department of Public Health and the results have been released.

ETHICAL CONSIDERATIONS

The invasion of respondents' privacy was a major ethical issue in this study and several procedures were adopted to minimize this concern on the part of residents and public officials. A letter informing respondents of the forthcoming study and soliciting their cooperation was sent out 1 to 2 weeks prior to the scheduled interview. Interviews were conducted with the informed consent of study subjects. No pressure was applied to encourage unwilling respondents to begin or continue an interview. Data gatherers were trained to be particularly courteous and sensitive when they asked detailed medical or personal questions.

The confidentiality of information collected during the interview was a second significant ethical issue. All staff persons with access to data were required to sign guarantees of confidentiality. The investigators stipulated, from the outset, that any results released to public, government and scientific audiences would be in aggregate form only and contain no references to individuals. As a further protection against the dissemination of confidential information, the research group followed such stringent procedures as i) using a double cover on all data collection instruments to permit removal of names as soon as the data had been entered into the log book; ii) restricting access to the log book containing the

identification codes; and iii) storing all sensitive materials in securely locked cabinets.

No data is released or will be released in a manner that permits linking personal or clinical information with any individual.

METHODS

Selection of Study Tracts

The 1971 census data for the City of Toronto and the surrounding urban region were analyzed, tract by tract, to evaluate the socio-demographic composition of each tract. Four major criteria were identified by the consulting social geographer, Dr. R.A. Murdie (Associate Professor of Geography, York University) as a basis for comparing census tracts. Each criterion comprises several variables available from the census; considered together they summarize the various economic, family, ethnic and housing aspects of any community. Using factor scores, all of the census tracts were ranked according to demographic similarity. The comparison tract, TR, was chosen on the basis of its demographic similarity to the Junction Triangle and the absence of heavy industry within its boundaries.

Five census tracts contiguous to the Junction Triangle provided respondents for the survey in addition to those in the comparison tract. These tracts were included so that the geographic area immediately surrounding the Junction Triangle could be examined for possible extension of any significant differences in health status that might be discovered between the study tract and the comparison tract. It was declared, in advance, that the comparison of primary interest was that between the Junction Triangle (area No. 1, JT) and the most demographically similar area devoid of industry (area No. 3, TR).

Questionnaire

Data that would provide comprehensive information about any adverse health effects experienced by respondents were gathered and documented in terms of symptom complaints, disability, illness-related absenteeism from work and school and health services utilization. The data were not validated through physician or hospital records and no medical procedures were performed.

The questionnaire incorporated:

1. Because the use of the standardized questions permits comparisons to be made between the Junction Triangle and other regions for which the same data have already been tabulated, most of the Interviewer-Administered Questionnaire was taken from the Canada Health Survey*;

2. Questions referring to alcohol consumption, tobacco use and emotional well-being (Bradburn Scale) from the self-administered questionnaire entitled «Lifestyle and Your Health» used in the Canada Health Survey**;

3. Occupational and residential history sections adapted from the American Respiratory Occupational Questionnaire (Samet J: A historical and epidemiological perspective on respiratory symptoms questionnaires, Am J Epidemiology, in press);

4. Questions about reproductive history adapted from Dr. R.W. Morgan, Environmental Health Associates, Berkeley, California;

* The Health of Canadians. A Report of the Canada Health Survey. Ministry of Supply and Services Canada, 1981.

** Bradburn NM: The Structure of Psychological Well-Being. Chicago, Aldine Publishing Co., 1969.

5. Introductory open-ended probes about recent health problems and dispersed decoy questions contributed by the Steering Committee members; and

6. A list of symptoms relevant to the Junction Triangle community that correspond with the acute and chronic toxic effects of many of the chemicals used by industries in the Junction Triangle.

The questionnaire was arranged as follows:

I. Recent health problems (within a two-week period). (open-ended probes).

II. Symptoms relevant to Junction Triangle community concerns.

III. Time-based disability (CHS)*.

IV. Health care utilization (CHS).

V. Accidents (CHS).

VI. Drug use (CHS).

VII. Activity limitation (CHS).

VIII. Chronic health problems (CHS).

IX. Probes into each of the health problems identified earlier (CHS).

X. Demographic characteristics (CHS).

XI. Bradburn and Happiness Scales (emotional well-being) (CHS).

XII. Occupational background.

XIII. Tobacco use and alcohol consumption (lifestyle risk factors) (CHS).

XIV. Reproductive history.

Answers to questions posed in these 14 sections provide information on: 1) risk factors, 2) health status, 3) health consequences, and 4) demographic characteristics, as depicted in Figure 1.

*(CHS) - taken from the Canada Health Survey

Figure 1

BASIC CATEGORIES OF INFORMATION

RISK FACTORS	HEALTH STATUS	CONSEQUENCES
Environment	**Self-reported Physical Health**	**Utilization**
- exposure to chemical compounds	- short-term conditions - chronic conditions - impairments - accidents and injuries	- professional providing care - medication use
Lifestyle	**Emotional Health**	**Condition Impact**
- alcohol use - tobacco use	- emotional well-being	- disability - debility - absenteeism - discomfort
	DEMOGRAPHIC CHARACTERISTICS	
	- socioeconomic - mobility - life events	

Relevant questions concerning acute and chronic adverse health effects and conditions were selected from a list compiled from: 1) the 1979 opinion survey conducted by the Junction Triangle Anti-Pollution Committee, 2) a list of chemicals known to be in use in some of the industries or present in the air in the Triangle (obtained from the Medical Officer of Health for the City of Toronto), and 3) letters of complaint, community meetings and publicity. The most salient signs, symptoms and chronic health problems* were then selected, by the consultants and members of the Steering Committee, from the following list for inclusion in the questionnaire:

<u>Respiratory System</u>

Nasal irritation*
Throat irritation*
Feeling of suffocation or chest restriction*
Bronchitis*
Emphysema*
Shortness of breath*
Reduced lung function

<u>Circulatory System</u>

Anemia*
Leukopenia
Leukocytosis
Aplastic anemia
Hemorrhage

<u>Skin</u>

Irritation* including:
- erythema
- dermatitis
- blister formation
- rashes

<u>Eyes</u>

Ocular irritation*
Corneal damage
Vision impairment*

<u>Miscellaneous</u>

Malignancies*
Dysarthria*
Fatigue*
Hepatic damage
Hepatomegaly
Renal damage
Digestive disorders
Diarrhea
Gingival irritation
Enamel corrosion

<u>Nervous System</u>

Headache*
Peripheral neuropathy*
Impaired coordination*
Parasthesias*
Weakness*
«Light headedness»
CNS depression
Photophobia

The long-term toxicological effects of chronic, low-level, intermittent exposures to mixtures of chemicals are not understood well enough to permit the evaluation of health effects specifically linked to industrial

pollution. In addition,

1) there is no complete list of chemicals to which Junction Triangle residents may have been exposed;

2) it is impossible to determine the route or dose of any xenobiotic exposure; and

3) the signs and symptoms in the list compiled from data on acute and chronic human and animal exposures at various levels and through different routes are non-specific and, in some cases, ill-defined. These limitations dictated a more comprehensive approach to health assessment in the study. Accordingly, it was hypothesized that the potential burden of ill health attributable to environmental exposures would be reflected in a measurable excess in the frequency and duration of disability and debility, and of acute and chronic health problems. The survey, therefore, relied primarily on measures of functional outcome as the most direct reflection of health status, with functional outcome being assessed on the basis of information on disability, debility, absenteeism and discomfort. Health care utilization was used as a behavioural indicator of the severity of health problems.

The interview was structured in a manner designed to minimize the possibility of respondents identifying the purpose of the interview and responding accordingly. The devices, so employed, included: i) introductory open-ended probes about health problems experienced within a two-week period, ii) the sequence of the different interview sections, and iii) decoy questions.

Given the ethnic composition of the study and comparison areas (Table 1.0), the questionnaire was translated into Italian and Portuguese and back into English to verify the accuracy of the translations. Chinese, Spanish and Greek interviewers were employed to translate the questionnaire orally for 20 Chinese-, 6 Greek- and 11 Spanish-speaking respondents.

Table 1.0

ETHNICITY	TOTALS N	%
English	853	75
Italian	125	11
Portuguese	123	10.8
Chinese	20	1.8
Spanish	11	1.0
Greek	6	.5
TOTAL	1138	

Scientific Review of the Protocol

The protocol was reviewed by an ad hoc panel of peer scientists from Ontario universities agreed upon by the ministries of Labour, and Environment and Health and coordinated by the latter.

Public Review of Protocol

The general public;

The Junction Triangle Anti-Pollution Committee;

The Junction Triangle Watchdog Committee;

The Western Health Area Community Advisory Board; and

The Northwest Toronto Industrial Coordinating Committee were invited to review the study protocol distributed on June 9, 1983, and to submit additional suggestions.

Analytic Strategies

The composite variables derived from the data collected using the Junction Triangle Survey Questionnaire included: «disability/debility», «physical discomfort», «health care utilization», «chronic health problems», «medications», «perceived discomfort», and «global happiness» in approximate order of significance with respect to the study hypotheses. In general, these variables were assessed in terms of their presence/absence, frequency, and duration; occurrences within the two weeks prior to the interview were always of primary interest because of the problems of recall for longer periods of time. Categorical data analysis and nonparametric methods were used to test for differences in the outcome variables between the two study areas of interest.

Other data were also collected in anticipation of a possible need to explain any between-area differences, e.g., on the use of eye contact lenses, occupation, scholarity, ethnicity, income, alcohol consumption, and tobacco use. It was decided that if such differences arose, appropriate adjustments would be made and the germane analyses would be repeated using logistic regression methods.

Sample Size

Sample size calculations were based on the most salient parameters of the study, as identified by the Steering Committee and consultants; minimizing beta, the probability of failing to detect a true difference in the frequency of adverse health effects between the two main comparison areas was a major consideration. A beta of 5% was selected with an alpha of 5%, alpha being the probability of declaring a difference when none exists. Sample size computations were based on dichotomous data (i.e., the presence or absence of

a given symptom, condition, or disability). Detection of a difference of 20% (delta) between the incidence rates of two areas was selected as being clinically and socially important; for less frequent adverse health effects, a delta of 10% was chosen. To allow for a non-response rate no greater than 20%, a sample of 110 children and 290 adults was required from each of: the Junction Triangle, the combined neighbourhoods adjacent to the Triangle, and the comparison tract. These samples were sufficiently large to permit detection of any differences between areas with respect to the health indicators chosen.

Sampling Scheme

A two-stage cluster sampling scheme, with probabilities proportional to the size of household, was employed to ensure that all residents within each study area had an equal possibility of being selected for interview, thereby allowing the generalizability of results. Households were the primary sampling units, and one person per household constituted the secondary sampling unit. Only one respondent was selected from each household unit in order to avoid correlated responses (i.e., similarity of answers within a family). A household was defined as a group of persons sharing bathroom and kitchen facilities.

A computer program based on provincial tax lists was obtained from Toronto City Hall; it provided the name, age and gender of all household members in the three areas. After stratification on the number of adults (i.e., persons aged 15 and over) per household was performed and proportions determined, a sample of 290 adult households was chosen with probabilities

proportional to size from each area using the random number generating program of SAS*. Where households had two or more adults, one was randomly selected for interview. A replacement sample of households was enumerated to provide substitutes for respondents who were ineligible or unwilling to participate.

A sample of 110 households with one or more children (aged 14 and under) was then randomly selected with probabilities proportional to size after stratification on the number of children per household; a replacement sample was also chosen. Note that households with children were only eligible for inclusion in the primary sampling unit frame if they had not been included in the adult sampling frame because only one respondent was selected from each household unit.

Data Collection

Trained interviewers pre-tested and administered the questionnaire. The pre-test was carried out in census tracts #101 and #102, located in the northwestern part of the area immediately adjacent to the Junction Triangle and outside the eventually studied comparison areas of this project. Few changes were necessary after the pre-test.

A total of 1200 interviews were attempted during the 25-week period between August 5, 1983 and January 31, 1984; 1138 were successfully completed.

The interviews were conducted in English, Italian, Portuguese, Spanish, Greek and Chinese by 22 trained interviewers and required, on average, about 30 minutes to complete. The performance of field work was regulated so that the same number of interviews were conducted per week or month throughout the study period in order to control for any confounding seasonal effects.

* Statistical Analysis Systems, 1982, SAS Institute, Cary, North Carolina.

Every effort, including letters, telephone contacts and repeated visits, was made to achieve the high response rate required to minimize selection and comparison biases. Certain internal consistency checks were built into the questionnaire to verify the reliability of the data before analysis. Inconsistencies were rectified after referring back to the questionnaires. These checks allowed the source of error to be identified, i.e., whether it was an interviewing, coding or data entry problem. The purpose of these verifications was to identify processing problems and to give some assurance that the data were clean enough to proceed with the analysis.

The quality of the data was enhanced by:

1. Telephone verification (10% of the respondents were contacted by telephone and were asked to answer 5 of the survey questions a second time. No discrepancies were reported. Respondents were also contacted whenever answers had been accidentally omitted);

2. Double coding (10% of the completed forms were coded a second time); and

3. Computerized data checking (completed questionnaires were subjected to analysis by a series of computer programs that checked ranges of admissable values, correctness of skip patterning, and consistency of data.

Any changes to the data base and the reasons for making them were fully documented on data update sheets attached to the original questionnaries.

Interviewers were cognizant of the quality control procedures and made every effort to maintain the high quality of the collected data.

Overall response by subjects was very positive. Refusals to participate amounted to < 1% for the Junction Triangle.

PROCESSING THE QUESTIONNAIRE

An intricate system was developed to handle the questionnaires properly and to monitor the progress of the study.

Logging System

Grand Master Log

The grand master log contains confidential information about respondents and links each respondent to an ID number and his or her name, address and other relevant background information. Only four staff members have authorized access to the grand master log. Respondents are listed by ID number in ascending order.

Daily Log

The daily log is a record of the submission of questionnaires to the office.

Routing Sheet

Each questionnaire is attached to a routing sheet where the progress of the questionnaire through the system is recorded.

Master Log

The master log charts the progress of each questionnaire from completion of interview to the final filing of study documents. Each respondent is identified by an ID number and sorted in ascending order. Other information relevant to the handling of the respondent interview and data such as language category, are also included here.

Medical and Lay Coding Log

The coding log provides detail on the progress of editing and coding the questionnaires - submission to coders, identification problems, and re-routing to interviewers when necessary. Medical and lay coding and editing are monitored in separate logbooks.

Data Entry Log

The data entry log provides detail about the progress of data entry and of the verification of edited questionnaires.

Checkout Sheet

Each file cabinet has a checkout sheet for signing out questionnaires.

Replacement Procedure

Replacement interviews were conducted for all ineligible respondents except for refusals.

Editing and Coding

Interviewers edited their own work on a routine basis. Routine editing was also performed by survey staff to check the completeness, legibility, and consistency of all entries into the questionnaire.

The majority of the items in the questionnaire have structured responses that facilitate coding, and reduce errors and cost. Open-ended questions were coded in a systematic way and collapsed into fewer categories at the time of the statistical analysis.

Questions asking the respondents to list health problems required clinical coding. These health problems represented the respondent's self-reported symptoms and health complaints and not necessarily medical diagnoses. The Ninth Revision of the International Classification of Diseases (ICD-9)* and the International Classification of Health Problems in Primary Care (ICHPPC-2)** were used for coding purposes. The latter is a widely used coding system for the lay reporting of health problems.

* World Health Organization (1975). Ninth Revision of the International Classification of Diseases, Geneva.

** International Classification of Health Problems in Primary Care (1979 Revision). Oxford University Press, 1979.

RESULTS

Sequence of Reporting

Some comments on statistical analysis will assist the reader in interpreting the results set forth in this section; a description of selected methodological results and a presentation of findings in each of the major groups of variables covered in the methods section of this Report follow.

Statistical Note

The main comparison for analytic purposes and for expression of statistical significance was declared, in advance, to be that between the most representative and yet comparable census tract in Toronto (labelled TR throughout the Tables in this section) and census tract 98, the Junction Triangle (labelled JT). A group of census tracts (numbers 53, 97, 99, 100, and 108) surrounding the Junction Triangle have been grouped together and are referred to as the Neighbouring Area (NA). The NA was chosen first to determine if there were any environmentally, clinically or epidemiologically significant findings for residents in its boundaries, given its proximity to the Junction Triangle, and to provide a point of reference and an opportunity to detect gradients related to distance from Junction Triangle. Nevertheless, the main comparisons are between the TR area and the JT area. The resulting 2x2 tables are analyzed via the chi-square test or Fisher's exact test when the outcome is less frequent. Wilcoxon's two-sample test is used to compare means.

A series of potentially confounding variables that could have significantly affected the results were assessed. Although a very sophisticated effort was made to choose an area for comparison that was

very comparable to JT (except for industrial exposure, the key independent variable), differences in such parameters as age or sex distribution or length of residency could have arisen despite our best efforts. Accordingly, analyses were made of such factors: they are presented, in part, in the Methodological Results subsection. The reader will recognize that a much higher rate of smokers in the JT area, for instance, could easily explain a higher rate of respiratory symptoms. Accordingly, smoking was among the possible confounding variables (often referred to as covariates) we assessed to ensure that comparisons were being made between areas that were comparable. If important differences had emerged, a statistical adjustment would have been necessary despite our strong preference not to engage in any adjusting or standardization. The main covariates assessed were: occupation, scholarity, ethnicity, income, use of tobacco products, use of alcohol, use of contact lenses for visual accuity correction, and rate of accidents. The analysis of these covariates was performed via chi-square tests and Wilcoxon's two-sample nonparametric test. The detailed results of the analysis of all these covariates are available on request from the statistical coordinator of the project.

Results of Analysis of Covariates

For the two main comparison areas, TR and JT, there were no differences of practical importance and no statistically significant differences in any of the covariates cited above; there was a slight difference in length of residence in the NA only. To be absolutely certain that no adjustment or standardization was required, all the results have been analyzed in two ways, i.e., with crude presentation of

rates or means or proportions and after adjustment for length or residence. Since adjustment and/or standardization makes no difference in the meaning of the results, we are able to present the unadjusted, nonstandardized rates, just as they were elicited from the people we surveyed.

1. Methodological Results

The fieldwork began in July of 1983 and was completed at the end of February of 1984. We have only reported those results necessary to demonstrate that we have comparable response experience in the three areas and that the experience was uniformly very good. All other information on methodological issues not presented under Methods is available, on request, from the statistical office of the Division of Clinical Epidemiology of the Montreal General Hospital.

It is important to note that the overall response rate was 94% (Table 1.1) with the rates ranging from 92% to 96%. Thus, sources of bias through selective response rates have essentially been eliminated. The rates of replacement were comparable for the three areas. The overall replacement rate of 6% is a reflection of the quality of the sampling frame provided by the City of Toronto; it was exceptionally good. The reasons for refusals (Table 1.2) are those generally offered by respondents in population surveys requiring access through household interviews. They give no cause for any particular concern.

No special field problems arose in respect to any particular subgroup of the population, either by age, ethnic background, or employment status. Neither were there any special problems in proxy interviews of children under 15.

The selected social demographic data displayed in Table 1.3 and 1.4 buttress the comparability of the areas studied.

Table 1.1

RESPONSE RATES, REFUSALS AND INVALID QUESTIONNAIRES

N = 400 in each area

Area	Response Rate	Refusals*	Invalid** Questionnaire
Toronto Representative TR	92%	7%	1%
Junction Triangle JT	96%	2%	2%
Neighbouring Areas NA	95%	4%	1%
Total	94%	4%	2%

Table 1.2

REASONS FOR REFUSALS

No reason given	- 18
Don't believe in survey	- 5
Suspicious	- 6
Invasion of privacy	- 2
Didn't want to be bothered	- 6
Contacted by phone from other study	- 2
Medical reasons	- 1
No time	- 6

* Respondent refused to complete interview

** A completed questionnaire was declared invalid when respondent did not meet the following eligibility criteria:
1 - length of residence at present address of no less than 14 days at time of interview
2 - child respondent should be 14 years of age or younger at time of interview

Table 1.3

ADULTS

SELECTED SOCIO-DEMOGRAPHIC VARIABLES

	TR	JT	NA
N	261	279	279
Mean Age	41.4	39.4	38.5
Percentage Female	50.2	51.6	50.0
Median Length of Residence in Area (years)	9.0	7.0	5.5
Ethnicity - Anglo	41.4	33.7	34.3
- Italian	16.1	5.4	4.0
- Portuguese	.4	14.0	12.8
- Other	42.2	47.0	49.0
Family Income			
% Not Reporting	43.7	34.8	39.4
% For Those Reporting			
- under $9000	10.2	13.2	17.5
- $20,000 and over	54.4	56.6	49.4
Percentage of Adults by Level of Education			
- 6 years or less	23.0	19.6	25.6
- 7 years to some post-secondary	63.0	66.2	56.4
Post-secondary or higher	14.0	14.2	17.9

Table 1.4

CHILDREN

SELECTED SOCIO-DEMOGRAPHIC VARIABLES

	TR	JT	NA
N	108	106	105
Mean Age	7.5	8.7	8.0
Percentage Female	52.8	54.7	53.3
Ethnicity - Anglo	43.5	41.5	36.2
- Italian	7.4	1.9	1.9
- Portuguese	0	4.7	5.7
- Other	49.1	51.9	56.2

2. Two-Week Period Prevalence of Reported Health Problems

One of the most important variables under assessment was the frequency of health problems reported by respondents in the Junction Triangle and in the comparison areas. As shown in Table 2.1, 33.7% of adults in the Toronto Representative area reported at least one health problem in the preceding two weeks; the corresponding figure for the Junction Triangle was 27.6%, i.e., a difference of 6.1% with the prevalence in the Junction Triangle being lower than the main comparison census tract. It deserves emphasis again, that a difference of 20% in either direction had been declared, in advance, as being clinically and practically meaningful. Moreover, the difference was not statistically significant despite any possible clinical importance. With respect to children (Table 2.2), the prevalence of reported health problems in Junction Triangle subjects was again somewhat lower than in the Toronto Representative area, but the difference was only 1.3%; the prevalence rate in the neighbouring area was within 1 percentage point of that in the Junction Triangle.

Table 2.1

ADULTS

TWO-WEEK PERIOD PREVALENCE
OF REPORTED HEALTH PROBLEMS

		TR	JT	NA
	N	261	279	274
ANY HEALTH PROBLEMS?	YES(%)	33.7	27.6	30.7
	NO(%)	66.3	72.4	69.3

NS, $X_1^2 = 2.38$, (TR vs JT)

Table 2.2

CHILDREN

TWO-WEEK PERIOD PREVALENCE
OF REPORTED HEALTH PROBLEMS

		TR	JT	NA
	N	108	106	105
ANY HEALTH PROBLEMS?	YES(%)	28.7	27.4	26.7
	NO(%)	71.3	72.6	73.3

NS, $X_1^2 = 0.05$, (TR vs JT)

3. Prevalence Data on Cardinal Symptoms

As indicated earlier under Methods, we selected a series of symptoms judged to be especially relevant to 1) the chemical substances of concern in the environment of Junction Triangle, 2) the types of problems previously reported formally and informally by residents of the area, and 3) the clinical and biological plausibility of such symptoms being the consequence of environmental pollutants. Comparisons for these symptoms were a key component of our research strategy. The cardinal symptoms chosen were:

- itching, burning or running of the nose not due to a cold;
- burning or itching of the skin;
- irritation of the throat not due to a cold;
- tiredness or fatigue limiting usual work or recreational activities;
- itching, burning or watering of the eyes.

Tables 3.1 and 3.2 show the two-week period prevalence of at least one of the cardinal symptoms listed above; among adults, there is a difference of less than 1% between the Junction Triangle and the most representative area of Toronto. Among children, the Junction Triangle prevalence rate was 11.3% and in the area most representative of Toronto it was 1.8%. By the rules agreed upon, in advance, 10% differences were judged to be clinically important. The adverse difference of 9.5% in the Junction Triangle was close enough to be declared clinically important, given its statistical significance ($p = 0.0051$). The figure of 7.6% for the neighbouring area gives rise to a gradient dropping from 11.3%, to 7.6%, to 1.8%. This gradient is compatible with an interpretation of a diminishing frequency of symptoms in relation to

distance from sources of environmental contamination in the Junction Triangle.

Table 3.3 shows no particular pattern suggesting excesses of cardinal symptoms among adults, but Table 3.4 shows a clear excess in itching, burning or running nose ($p = .0284$) and in throat irritation ($p = .0137$) in children.

An examination of the one-year period prevalences for adults and children, as shown in Tables 3.5 and 3.6, reveals a comparable frequency of cardinal symptoms among adults but the marked adverse difference for children in the Junction Triangle remains, i.e., 30.2% versus 18.5% ($p = 0.0466$).

Table 3.1

ADULTS

TWO-WEEK PERIOD PREVALENCE OF AT LEAST ONE CARDINAL SYMPTOM

	TR	JT	NA
N	261	279	274
YES(%)	4.2	3.9	4.7
NO(%)	95.8	96.1	95.3

NS, $X_1^2 = 0.03$, (TR vs JT)

Table 3.2

CHILDREN

TWO-WEEK PERIOD PREVALENCE OF AT LEAST ONE CARDINAL SYMPTOM

	TR	JT	NA
N	108	106	105
YES(%)	1.8	11.3	7.6
NO(%)	98.2	88.7	92.4

$P = 0.0051$, $X_1^2 = 7.85$, (TR vs JT)

Table 3.3

ADULTS

TWO-WEEK PERIOD PREVALENCE OF SPECIFIC CARDINAL SYMPTOMS (PERCENTAGES)

	TR	JT	NA	P-value
N	261	279	274	
Itching, burning or running nose	0.8	0.7	1.5	NS
Itching or burning skin	0.8	1.1	1.8	NS
Throat irritation	1.5	1.8	1.5	NS
Tiredness or fatigue	0.8	0.7	0.4	NS
Itching, burning or watery eyes	0.8	2.1	0	NS

P-values obtained by Fisher's exact test (TR vs JT)

Table 3.4

CHILDREN

TWO-WEEK PERIOD PREVALENCE OF SPECIFIC CARDINAL SYMPTOMS (PERCENTAGES)

	TR	JT	NA	P-value
N	108	106	105	
Itching, burning or running nose	0	4.7	.1	0.0284
Itching or burning skin	1.9	5.7	1.9	NS
Throat irritation	0	5.7	1.9	0.0137
Tiredness or fatigue	0	.9	.1	NS
Itching, burning or watery eyes	0	1.9	1.9	NS

P-values obtained by Fisher's exact test (TR vs JT)

Table 3.5

ADULTS

ONE-YEAR PREVALENCE OF
CARDINAL SYMPTOMS

	TR	JT	NA
N	261	279	274
PREVALENCE(%)	23.0	29.4	33.2

NS, $X_1^2 = 2.85$, (TR vs JT)

Table 3.6

CHILDREN

ONE-YEAR PREVALENCE OF
CARDINAL SYMPTOMS

	TR	JT	NA
N	108	106	105
PREVALENCE(%)	18.5	30.2	28.6

$P = 0.0466$, $X_1^2 = 3.96$, (TR vs JT)

4. Two-Week Prevalence of All Probed Symptoms

In addition to the cardinal symptoms, we enquired about:

- trembling or unsteadiness of the hands;
- tingling of the hands, feet, fingers or toes;
- loss of feeling in the hands, fingers or toes;
- feeling of suffocation or feeling that one cannot breathe;
- being sick to one's stomach or feeling nauseated;
- weakness in the hands, feet, fingers or toes;
- shortness of breach when walking up a slight hill or climbing stairs.

These 7 symptoms and the cardinal symptoms were all probed by asking each respondent, or each proxy respondent answering for a child, whether they had been experienced within a specified period in the past.

Table 4.1 shows a difference of 1.4 % in the prevalence of all of these probed symptoms when adult respondents were asked if they had experienced at least one of them in the preceding two weeks. With respect to children, although there is a trend showing an increased frequency of the probed symptoms in the Junction Triangle compared to the Toronto Representative Area and the Neighbouring Area, the difference does not approach the predetermined level of clinical importance and is not statistically significant ($p = 0.0982$). The percentages of each symptom, Tables 4.3 and 4.4, are consistent with the aggregates shown in Tables 4.1 and 4.2, particularly Table 4.2 concerning children.

Examination of the one-year period of prevalence for all 12 probed symptoms reveals a small increase for adults (Table 4.5) in Junction Triangle compared to the most representative Toronto census

tract but it is not statistically significant. However, the one-year period prevalence for the 12 symptoms probed among children (Table 4.6) shows a difference of >15%, which is clinically important and statistically significant ($p = 0.0107$).

Tables 4.5 and 4.6 do not reveal any noteworthy trend or pattern for specific non-cardinal symptoms, either in adults or children.

Table 4.1

ADULTS

TWO-WEEK PERIOD PREVALENCE OF TWELVE PROBED SYMPTOMS (AT LEAST ONE)

	TR	JT	NA
N	261	279	274
YES(%)	6.1	7.5	9.5
NO(%)	93.9	92.5	90.5

NS, $X_1^2 = 0.41$, (TR vs JT)

Table 4.2

CHILDREN

TWO-WEEK PERIOD PREVALENCE OF TWELVE PROBED SYMPTOMS (AT LEAST ONE)

	TR	JT	NA
N	108	106	105
YES(%)	6.5	13.2	10.5
NO(%)	93.5	86.8	89.5

NS, $X_1^2 = 2.73$, (TR vs JT)

Table 4.3

ADULTS

TWO-WEEK PREVALENCE OF EACH PROBED SYMPTOM (PERCENTAGES)

SYMPTOM N	TR 261	JT 279	NA 274
*Itching, burning or running nose NOT due to a cold	.8	.7	1.5
Trembling or unsteadiness of the hands	.4	.7	1.1
*Burning or itching of the skin	.8	1.1	1.8
Tingling in the hands, feet, fingers or toes	.8	.7	.4
*Irritation of the throat NOT due to a cold	1.5	1.8	1.5
*Tiredness or fatigue limiting usual work or recreational activities	.8	.7	.4
Loss of feelings in the hands, fingers or toes	0	.4	0
*Itching, burning or watering of the eyes	.8	2.2	0
Feeling of suffocation or feeling you cannot breathe	0	1.1	1.1
Sick to your stomach or nauseated	1.9	2.9	2.2
Weakness in the hands, feet, fingers or toes	0	.7	.4
Shortness of breath when you walk up a slight hill or climb stairs	.4	.4	.7

* Cardinal symptoms

Table. 4.4

CHILDREN

TWO-WEEK PREVALENCE OF EACH PROBED SYMPTOM (PERCENTAGES)

SYMPTOM N	TR 108	JT 106	NA 105
*Itching, burning or running of nose NOT due to a cold	0	4.7	1.0
Trembling or unsteadiness of the hands	0	.9	0
*Burning or itching of the skin	1.9	5.7	1.9
Tingling in the hands, feet, fingers or toes	0	.9	1.9
*Irritation of the throat NOT due to a cold	0	5.7	1.9
*Tiredness or fatigue limiting usual work or recreational activities	0	.9	1.0
Loss of feeling in the hands, fingers or toes	0	0	0
*Itching, burning or watering of the eyes	0	1.9	1.9
Feeling of suffocation or feeling you cannot breathe	0	.9	0
Sick to your stomach or nauseated	4.6	1.9	2.9
Weakness in the hands, feet, fingers or toes	0	.9	0
Shortness of breath when you walk up a slight hill or climb stairs	0	0	1.0

* Cardinal symptoms

Table 4.5

ADULTS

ONE-YEAR PERIOD PREVALENCE FOR
TWELVE PROBED SYMPTOMS

	TR	JT	NA
N	261	279	274
PREVALENCE(%)	33.7	38.0	45.6

NS, $X_1^2 = 1.07$, (TR vs JT)

Table 4.6

CHILDREN

ONE-YEAR PERIOD PREVALENCE FOR
TWELVE PROBED SYMPTOMS

	TR	JT	NA
N	108	106	105
PREVALENCE(%)	24.1	39.6	38.1

$P = 0.0146$, $X_1^2 = 5.97$, (TR vs JT)

5. Disability and Debility

The extent of bed disability of our study subjects was compared. The extent to which a major activity loss or debility could be a reflection of impaired function was examined. Since the exposure to the potentially harmful substances in the environment in the study areas is to a low dosage level and is chronic in character, we also measured minor debility or disability in terms of activity loss by the subjects.

It was important to examine bed disability in terms of two-week prevalences, as well as in terms of annual experience, because the two week prevalence maximizes good recall. The annual experience, however, gives a better perspective on disability that is recurring or important outside the recall span of two weeks.

Table 5.1 displays bed disability in the preceding two weeks. For adults in the Junction Triangle it was similar to the most representative Toronto area (a difference of 1%); for children in the Junction Triangle it was 9.4% versus 7.4% in the main comparison area. The difference of 2% is not of clinical importance. The rate in the neighbouring area was somewhat higher at 10.5%.

The annual experience of bed disability, expressed as bed disability days per person, was somewhat higher, in the 3 areas examined, than the national Canadian rate as reported by the Canada Health Survey.
Bed disability was higher in the Junction Triangle than in the main comparison area but the difference was not statistically significant. With respect to children, the differences between Junction Triangle and the most representative area of Toronto are very small and similar to Canadian experience, as a whole. The rate in the neighbouring area was

somewhat higher but the difference was not statistically significant. Table 5.2 shows, however, that over 90% of the respondents, whether they were adults or children, did not have any bed disability at all.

The number of days per person of debility or of major activity loss in the two major areas of comparison, as depicted in Table 5.3, was appreciably higher than the national Canadian average but the difference between them was not statistically significant. With respect to children, the rate of activity loss in the Junction Triangle was lower than it was in the most representative Toronto area and lower than the comparable Canada Health Survey statistic.

Table 5.4 reports minor activity loss or minor debility as days lost per year. The Canada Health Survey provides no comparable figures. The rate for adults was somewhat lower in the Junction Triangle than in the most representative Toronto area; for children, the rates were almost equal. The differences were not only without clinical importance but were also without statistical significance. In both cases, the neighbouring area was higher than either the Junction Triangle or the main control area.

Table 5.1

BED DISABILITY IN PRECEDING TWO WEEKS
(PERCENTAGE RESPONDING «YES»)

	TR	JT	NA	P-value
N	261	279	274	
Adults	9.7	9.0	9.9	NS
N	108	106	105	
Children	7.4	9.4	10.5	NS

P-values from chi-square test (TR vs JT)

Table 5.2

ANNUAL BED-DISABILITY DAYS PER PERSON

	TR	JT	NA	CHS	P-value
N	261	279	274	17,491	
Adults	7.77	11.18	8.63	5.78	NS
N	108	106	105	5,530	
Children	2.89	4.41	6.19	3.62	NS

P-values from Wilcoxon's test (TR vs JT)

Table 5.3

ANNUAL MAJOR ACTIVITY-LOSS DAYS PER PERSON*
(DEBILITY)

	TR	JT	NA	CHS	P-value
N	205	241	219	17,491	
Adults	14.33	12.51	7.48	6.91	NS
N	59	75	70	5,530	
Children	10.13	4.51	14.48	6.51	NS

* Work, school, domestic

P-values from Wilcoxon's test (TR vs JT)

Table 5.4

ANNUAL MINOR ACTIVITY LOSS DAYS PER PERSON
(MINOR DEBILITY OR DISABILITY)

	TR	JT	NA	P-value
N	260	279	274	
Adults	11.60	8.20	13.85	NS
N	108	106	105	
Children	4.81	5.15	8.67	NS

P-values from Wilcoxon's test (TR vs JT)

6. Health Care Utilization

Respondents in the three study areas were asked whether they had consulted any of the following health professionals during the previous two weeks:

- medical doctor
- dentist
- nurse
- pharmacist or druggist
- optometrist or optician
- chiropractor
- psychologist, social worker or other counsellor
- other health professional

Table 6.1 shows that the two week rates of use of any of the listed health professionals were very similar for adults in all three study areas but were somewhat higher than the Canadian average, as reported in the Canada Health Survey. For children, the rates in all three areas were also somewhat above the Canada Health Survey rate and fairly similar except for the neighbouring area. There were no differences of clinical consequence or statistical significance in the main comparisons between the most representative Toronto area (TR) and the Junction Triangle (JT).

Table 6.2 shows the mean number of visits per 1000 people in the preceding two weeks. Adults in the Junction Triangle (JT) made fewer visits, on average, to physicians, dentists and nurses than adults in the most representative Toronto area (TR). For adult visits to pharmacists, the two areas were comparable. For children, the averages were comparable for visits to physicians but were appreciably higher for visits to

dentists, nurses and pharmacists; the differences were not, however, statistically significant. It is noteworthy that physician visits in the neighbouring area (NA) were appreciably higher than in the other two areas.

The number of nights per person per year spent in a health care facility (hospital, nursing home or convalescent home) is a good barometer of the health of any population. The proportion of adults in the Junction Triangle (JT) who spent at least one night in any health care facility during the preceding 12 months was somewhat higher than the most representative Toronto area. Among children the reverse was true. However, none of these differences is of sufficient magnitude to have clinical importance according to the rules we spelled out in advance. The mean number of nights per 1000 spent in any health care facility in the 12-month period by adults was also somewhat higher and by children quite a bit lower but the differences are not statistically significant. The mean number of nights spent by children in any health care facility was lower for the neighbouring areas (NA) than for the most representative Toronto area (TR), the reverse being true for adults.

Table 6.1

TWO-WEEK PERCENTAGE OF USE OF ANY HEALTH PROFESSIONAL*

		TR	JT	NA	CHS
ADULTS	N	261	279	274	14791
	%	31.0	29.0	30.3	22.7
CHILDREN	N	108	106	105	5530
	%	25.9	26.4	35.2	19.4

*Question: During the past 2 weeks did you see or talk to any health professionals about your health?

NS, p-values from chi-square test (TR vs JT)

Table 6.2

MEAN NUMBER OF VISITS PER THOUSAND PEOPLE IN PRECEDING TWO WEEKS

ADULTS

	N	Physician	Dentist	Nurse	Pharmacist	Other
TR	261	310	42	84	27	115
JT	279	262	36	22	29	57
NA	274	328	40	91	36	109

CHILDREN

TR	108	194	65	65	19	28
JT	106	217	94	113	47	28
NA	105	305	76	114	29	152

NS, Wilcoxon's test (TR vs JT)

Table 6.3

TWELVE-MONTH PERCENTAGE OF PERSONS SPENDING AT LEAST ONE NIGHT IN ANY HEALTH CARE FACILITY*

		TR	JT	NA	P-value
ADULTS	N	261	279	274	
	%	6.5	10.4	7.3	NS
CHILDREN	N	108	106	105	
	%	6.5	3.8	3.8	NS

*Question: How many nights did you spend in a hospital, a nursing home or a convalescent home in the last 12 months?

P-values from chi-square test (TR vs JT)

Table 6.4

MEAN NUMBER OF NIGHTS PER THOUSAND PERSONS SPENT IN ANY HEALTH CARE FACILITY IN A TWELVE-MONTH PERIOD

		TR	JT	NA	P-value
ADULTS	N	261	279	274	
		958	1176	1613	NS
CHILDREN	N	108	106	105	
		352	104	57	NS

P-values from Wilcoxon' test (TR vs JT)

7. Use of Medications

One index of the state of a person's health is the use of medications. We followed the Canada Health Survey approach and selected the 2 days preceding the interview for the purpose of minimizing problems of recall. The respondents were probed on the basis of a list of 10 medications taken from the Canada Health Survey. They were also asked whether the medication was obtained on the advice of a medical doctor or obtained over the counter.

Table 7.1 shows the percentage of respondents who had used 1 or more medications in the preceding 2 days; among adults, the Junction Triangle percentage of 60.6%, is significantly higher ($p = 0.008?$) than the most representative area of Toronto which showed a 49.2% use of any medication in the preceding 2 days; the latter is in close agreement with the rate of 48.8% reported in the Canada Health Survey. The rate of 58.8% usage in the Neighbouring Area is almost as high as that in the Junction Triangle. When these data were classified according to whether the medication had been obtained on the advice of a medical doctor or over the counter, the same patterns emerged but the differences between them were only statistically significant in the case of over the counter drugs ($p = .0591$). Table 7.2 shows that among children, the percentages in the most representative area of Toronto, TR, were slightly higher than the percentages in the other two areas. These differences were not, however, statistically significant and the results were comparable to the 44.8% reported in the Canada Health Survey for all of Canada. Furthermore, the differences between the percentages of usage of over the counter medications or of those obtained on the advice of a medical doctor were not statistically significant between the two areas of interest, namely TR and JT.

Tables 7.3 and 7.4 present a more precise measure of the number of medications used in the preceding 2 days; they show the mean number of medications per thousand adults and children, respectively, for each of the 3 areas. These means are comparable except perhaps for the children of the Neighbouring Area who average 400 medications per 1000 versus 277 and 208 per 1000 in TR and JT respectively. It is worth noting that, although the percentage of adults who used medications is higher in JT than in TR (see Table 7.1), the means are similar, thereby implying that the smaller percentage of users from TR (49%) must be heavier users of medications than the larger percentage of users from JT (61%).

Table 7.1

ADULTS

PERCENTAGE OF RESPONDENTS WHO USED ONE OR MORE MEDICATIONS IN THE PRECEDING TWO DAYS

	TR	JT	NA	CHS	P-value
N	260	279	274		
Prescription (%)	33.7	38.4	38.7		NS
Over the counter (%)	25.0	32.3	34.0 0		0.0591
Any medication (%)	49.2	60.6	58.8	48.8	0.0082

P-values from chi-square test (TR vs JT)

Table 7.2

CHILDREN

PERCENTAGE OF RESPONDENTS WHO USED ONE OR MORE MEDICATIONS IN THE PRECEDING TWO DAYS

	TR	JT	NA	CHS	P-value
N	108	106	105		
Prescription (%)	21.3	16.0	28.6		NS
Over the counter (%)	33.3	29.3	21.9		NS
Any medication (%)	46.3	42.5	44.8	44.8	NS

P-values from chi-square test (TR vs JT)

Table 7.3

ADULTS

MEAN NUMBER OF MEDICATIONS PER THOUSAND PERSONS IN THE PRECEDING TWO DAYS

	TR	JT	NA
N	260	279	274
Prescription	678	674	613
Over the counter	314	383	434
Any medication	992	1057	1047

Table 7.4

CHILDREN

MEAN NUMBER OF MEDICATIONS PER THOUSAND PERSONS IN THE PRECEDING TWO DAYS

	TR	JT	NA
N	108	106	105
Prescription	277	208	400
Over the counter	380	330	248
Any medication	657	538	648

8. Chronic Health Problems

Through the questionnaire we probed for specific chronic health problems that could plausibly be associated with the environmental risk factors concerned. The chronic health problems probed were:

- Problems with eyesight not corrected by glasses
- Anemia
- Asthma
- Hayfever or other allergies
- Arthritis or rheumatism
- Cancer
- Diabetes
- Emphysema or chronic bronchitis
- High blood pressure
- Heart disease
- Kidney disease
- Stomach ulcer
- Thyroid trouble or goitre
- Recurring migraine headaches

Table 8.1 is a list of the point prevalences of any chronic health problem elicited by probe in the three study areas (67.4% to 71.2%) and in Canada as a whole (60.5%); the values for the study areas are comparable. The difference between the most representative Toronto area and the Junction Triangle area is small and not significant. For children, the rates for each of the three areas surveyed are lower than for Canada as a whole (34.9%). The difference between the point prevalences in the Junction Triangle and the main comparison area (TR) is neither clinically nor statistically significant.

Table 8.2 shows the point prevalence of the chronic health problems we probed; none of the differences attain statistical significance even though the numbers in the table make the differences seem large because they are expressed in cases per thousand. Thus, for adults, two cases of cancer in the Junction Triangle are translated to a rate of 7.2, and one case in the adjacent area becomes a rate of 3.6. Similarly, for kidney disease the Junction Triangle had four cases and the most representative Toronto area had two. None of the differences in Table 8.3 is of clinical significance or statistical significance because of their magnification to cases per thousand.

Table 8.1

POINT PREVALENCE OF ANY CHRONIC HEALTH PROBLEM BY PROBE

		TR	JT	NA	CHS
	N	260	279	274	17,492
Adults	%	71.2	67.4	71.2	60.5
	N	108	106	105	5,531
Children	%	17.6	25.5	34.3	34.9

NS, p-values from chi-square test (TR vs JT)

Table 8.2

ADULTS

POINT PREVALENCE OF CHRONIC PROBLEMS PROBED
(CASES PER THOUSAND)

Chronic Problem	TR	JT	NA	CHS
Problems with eyesight not corrected by glasses	80.8	118.7	121.8	63.1
Anemia	38.6	32.5	48.5	21.9
Asthma	19.2	36.0	55.1	23.2
Hayfever or other allergies	198.4	181.5	201.5	101.0
Arthritis or rheumatism	281.3	245.4	256.6	138.7
Cancer	0	7.2	3.7	-
Diabetes	27.0	32.8	22.1	21.3
Emphysema or chronic bronchitis	61.5	61.8	29.4	28.1
Hign blood pressure	93.4	126.8	116.1	88.6
Heart disease	57.9	61.2	62.3	47.5
Kidney disease	15.4	36.1	51.3	-
Stomach ulcer	54.1	58.2	36.8	27.3
Thyroid trouble or goitre	27.1	10.8	22.1	16.9
Recurring migraine headaches	97.3	123.2	172.8	60.7

NS, from chi-square or Fisher's exact test (TR vs JT)

Table 8.3

CHILDREN

POINT PREVALENCE OF CHRONIC PROBLEMS PROBED
(CASES PER THOUSAND)

Chronic Problem	TR	JT	NA	CHS
Problems with eyesight not corrected by glasses	18.7	66.0	38.1	17.4
Anemia	0	9.5	47.6	6.0
Asthma	9.3	9.6	28.6	25.5
Hayfever or other allergies	103.8	127.5	163.5	70.5
Arthritis or rheumatism	0	9.4	9.5	2.4
Cancer	0	0	0	-
Diabetes	0	0	0	0
Emphysema or chronic bronchitis	0	0	38.1	12.7
High blood pressure	0	0	0	0
Heart disease	9.3	18.9	9.5	0
Kidney disease	9.3	9.4	19.0	-
Stomach ulcer	9.3	0	9.6	0
Thyroid trouble or goitre	0	9.4	9.5	0
Recurring migraine headaches	9.3	28.3	47.6	7.2

NS, from chi-square or Fisher's exact test (TR vs JT)

9. Spontaneously Reported Health Problems

In contrast to the problems displayed in proceeding sub-sections, the point prevalences listed in Tables 9.1 and 9.2 cover any health problems (chronic or acute) that the respondents reported spontaneously early in the interview. We stress that the data in the previous tables (Tables 2.1, 2.2, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 8.1, 8.2, 8.3) were elicited as the result of respondents being directly probed and asked about specific health problems by name. Table 9.1 reveals an 8% difference between adults in the most representative Toronto area and in the Junction Triangle in the prevalence of spontaneously reported health problems but the differences are not highly statistically significant ($p = 0.0620$). Although the prevalence for children is 3.5% higher in the Junction Triangle and the neighbouring area (NA), the difference has no clinical or statistical significance.

The prevalences for spontaneously reported health problems that occurred after the respondent first established residence in one of three study areas was also assessed so that chronic health problems occurring prior to taking up residence in the area of interest would not be inappropriately imputed to environmental risk factors in a study area. The data in Table 9.2 show that there was no difference in such newly arising health problems reported spontaneously either for adults or children between the two main areas under comparison. The results for the neighbouring area are comparable as well.

Table 9.1

POINT PREVALENCE OF SPONTANEOUSLY REPORTED HEALTH PROBLEMS
(AT LEAST ONE PROBLEM)

		TR	JT	NA
	N	261	279	274
Adults	%	55.6	63.4	60.6
	N	108	106	105
Children	%	36.1	39.6	39.1

NS, P-values from from chi-square test (TR vs JT)

Table 9.2

POINT PREVALENCE OF SPONTANEOUSLY REPORTED HEALTH PROBLEMS
(AT LEAST ONE PROBLEM SINCE RESIDING IN STUDY AREA)

		TR	JT	NA
	N	261	279	274
Adults	%	46.7	47.7	39.1
	N	108	106	105
Children	%	31.5	32.1	30.5

NS, P-values from chi-square test (TR vs JT)

10. School Absenteeism Among Children

We established which children had been at school for at least 2 weeks prior to the interview conducted by proxy. Since this limited our data gathering in this respect to children interviewed at least 2 weeks after Labour Day, the denominators shown in Table 10.1 are low. On the basis of these denominators, we calculated the days of school lost over a 2-week period per 100 children and found that although the lowest absenteeism occurred in the Junction Triangle, it was not practically or statistically different from that in the most representative Toronto area. While the rate in the neighbouring area was somewhat higher than it was in the TR area, the difference was not statistically significant.

Table 10.1

SCHOOL ABSENTEEISM AMONG CHILDREN

DAYS LOST PER TWO WEEKS FOR ONE HUNDRED CHILDREN AT SCHOOL

	TR	JT	NA
N	35	50	43
Days/2w/100	37	26	54

NS from Wilcoxon's test (TR vs JT)

11. Reproductive Outcomes

We ascertained the number of women aged 15 to 49 years in each area and from them elicited the information on reproductive experience that is summarized in Table 11.1. The reproductive experience in the three study areas is similar in terms of women with at least one pregnancy and the number of pregnancies per women. The trend is toward a lower rate of reported miscarriages in the Junction Triangle than in the main comparison group (TR). Although the rate of reported stillbirths is much lower in the Junction Triangle, the difference is not statistically significant because of the small sample size.

Table 11.1

ADULT WOMEN (AGE 15 to 49)

REPRODUCTIVE OUTCOMES

OUTCOME	TR	JT	NA
N	84	91	102
Women with at least one pregnancy (%)	57	62	56
Number of pregnancies per 1000	1488	1802	1529
Reported miscarriages per 1000 pregnancies	354	214	404
Reported Stillbirths per 1000 pregnancies	83.	18	70

12. Sense of Well-Being

There are many scales that measure the sense of well-being of people. Of those, there are two that accurately and reliably reflect people's feelings about life in general, about their circumstances in particular and which are short enough to include in our questionnaire; they were both developed by Bradburn. One is called the Bradburn Affect Scale, and the other the Bradburn Happiness Scale.

The results displayed in Tables 12.1 and 12.2 show that the sense of well-being and balance, as measured by the Affect Scale, is comparable across the three areas and that the extent of happiness reported is almost comparable. It is noteworthy that respondents who are first generation new Canadians from the main ethnic groups living in the areas had considerable difficulty in understanding and responding to the questions. Consequently, the results are primarily significant for English-speaking subjects. The data elicited from English-speaking respondents sustain the view that people have a very similar sense of well-being across the three Toronto areas.

Table 12.1

ADULTS

BRADBURN AFFECT SCALE

	TR	JT	NA
N	261	279	274
MEAN	29.5	29.5	28.9
MEDIAN	30.0	30.0	29.0

Table 12.2

ADULTS

BRADBURN HAPPINESS SCALE

	TR	JT	NA
N	250	278	268
Very happy (%)	30.4	22.3	23.9
Pretty happy (%)	60.4	65.5	63.4
Not too happy (%)	9.2	12.2	12.7

13. Occupational and Residential Exposure to Risk Factors Potentially Hazardous to Health

Occupational exposure to noise, dust particles, chemicals or solvents, gas, chemical fumes and smells was surprisingly high as reported to us in all three Toronto areas studied. The extent to which the inhabitants of each area reported being exposed to each of the four assessed groups of risk factors was comparable (Table 13.1), i.e., there are no differences of practical or statistical significance. This holds true for all factors in combination with the exclusion of dust because it is so ubiquitious.

Reported residential exposure to the same risk factors is another matter, as shown in Table 13.2. Although there is once again an unexpectedly high level of exposure in all three groups to the risk factors assessed, the reported exposure to gas, chemical fumes or smells in the Junction Triangle is six times higher than in the most representative Toronto area (66.2% versus 11.9%) and this difference is statistically significant ($p < 0.0001$). Similarly, the difference in exposure to heavy traffic or to dusty particles is also highly significant statistically ($p < 0.0001$). Total combined exposure, except for dusty particles, is twice as great in the Junction Triangle according to the reports as it is in the most representative Toronto Area and is somewhat higher than in the Neighbouring Area; the difference is also of statistical significance ($p < 0.0001$).

Table 13.1

ADULTS

REPORTED OCCUPATIONAL EXPOSURE TO RISK FACTORS
POTENTIALLY HAZARDOUS TO HEALTH
(FOR MORE THAN ONE YEAR)

		TR	JT	NA
Noise	N	234	237	229
	%	40.2	44.7	45.0
Dusty particles	N	231	236	229
	%	39.8	37.3	41.9
Chemicals or solvents	N	233	239	229
	%	18.9	18.8	21.8
Gas, chemical fumes	N	232	237	229
or smells	%	22.4	17.7	24.0
All factors above	N	237	240	231
except dust	%	27.9	25.0	31.2

Table 13.2

ADULTS

REPORTED RESIDENTIAL EXPOSURE TO RISK FACTORS
POTENTIALLY HAZARDOUS TO HEALTH
(FOR MORE THAN ONE YEAR)

		TR	JT	NA
Dusty particles	N	258	275	265
	%	14.3	34.5	32.1
Heavy traffic	N	260	279	272
	%	29.2	45.5	44.9
Gas, chemical	N	260	275	272
fumes or smells	%	11.9	66.2	45.2
All exposure except	N	260	279	273
dusty particles	%	32.7	76.3	62.6

CONCLUSIONS

Comparability of Comparison Areas

The socio-demographic information we obtained confirms that the area chosen for the principal comparisons with the Junction Triangle, namely the TR area, was highly comparable. The main difference was that 16% of the residents in the TR area were of Italian origin and .4% of Portuguese origin compared to 5.4% and 14%, respectively in the JT area. When all the findings for only Italian and Portuguese subjects (n = 155) were analyzed, we found that there was no difference between Italians and Portuguese for the key dependent variables; accordingly, any concern about the difference in population mix has been dispelled and should not influence the interpretation of the findings when comparisons are made between the TR and the JT areas. The overall response rate was very high and was comparable for all three areas so that no influence can be attributed to differences in response rates. Tables 1.3 and 1.4 (pages 23 and 24) display the data confirming the comparability of the TR and JT areas and even that of the NA area for most variables relating to adults and children.

Profile of Findings from the Health Status Survey

Table 14.1 portrays the results of comparisons between the Junction Triangle (JT) and the most comparable area of Toronto, which is also reasonably representative of the city (TR), in a manner that makes it easy to identify grounds for concern or reassurance.

Health Indicators of Adults. If one considers items 1 to 17, the health indicators chosen for this survey, it is clear that for 13 of them there is no difference between the Junction Triangle and the TR area and that the trend suggests fewer problems in the Junction Triangle. Among adults, the only two indicators suggesting a trend of adverse experience in the JT are the

Table 14.1

PROFILE OF HEALTH STATUS INDICATORS AND EXPOSURE VARIABLES

JUNCTION TRIANGLE JT VERSUS COMPARISON AREA TR

		ADULTS	CHILDREN	
1.	2 wk prevalence (2 wk - P) reported health problems	↘	→	
2.	Point prevalence of probed health problems	→	↗	
3.	Point prevalence of spontaneously reported health problems	→	→	
4.	2 wk - P cardinal symptoms	→	↑ G**	
5.	1 yr - P cardinal symptoms	↗	↗ G*	
6.	2 wk - P twelve symptoms	→	↗ G	
7.	1 yr - P twelve symptoms	→	↗ G*	
8.	Bed disability	→	→	
9.	Debility (major activity loss)	→	↘	
10.	Minor disability or debility	→	→	
11.	Use of doctors and health practitioners (2 wk)	→	→	except nurses
12.	Use of health facilities	→	→	
13.	Use of medications	↗ G**	→	
14.	School absenteeism	NA	↘	
15.	Reported miscarriages	↘	NA	
16.	Reported stillbirths	↘	NA	
17.	Sense of well being	→	NA	
18.	Reported occupation exposure to risk factors potentially hazardous	→	NA	
19.	Reported residential exposure to risk factors potentially hazardous	↑ G***	NA	
20.	Reported residential exposure to gas, fumes, odours	↑ G***	NA	

Table 14.1 (Continued)

PROFILE OF HEALTH STATUS INDICATORS AND EXPOSURE VARIABLES

JUNCTION TRIANGLE JT VERSUS COMPARISON AREA TR

CODE:

→	No difference between TR and JT
↗	JT > TR by 5% or more but not significant (trend)
G	Gradient evident JT > NA > TR
↑	Both clinically and statistically significantly greater JT > TR
↓	Both clinically and statistically significantly greater TR > JT
↘	TR > JT by 5% or more but not significant (trend)
*	$p < 0.05$
**	$p < 0.01$
***	$p < .001$
NA	not applicable

one-year prevalence rates for cardinal symptoms and the use of medications. However, only the difference in the rate of use of medications attained clinical or statistical significance. Consequently, we have concluded that there is no difference in the health status of the adult residents of the Junction Triangle and those of the most comparable census tract of Toronto who were not exposed to the emanations from industry identified as being a problem in the Junction Triangle area.

Reported exposure of adults. It is an important negative finding that the adults of Junction Triangle report no difference in exposure to risk factors potentially hazardous to health at the work site, i.e., occupational exposure. With respect to residential exposure to risk factors potentially hazardous to health, however, a marked excess was reported in the Junction Triangle compared to the TR area. The difference was statistically significant and a gradient was evident; the reported exposure in the Junction Triangle was higher than in the Neighbouring Area (NA) which was higher, in turn, than in the TR area. Such gradients (coded as «G» in Table 14.1) are important evidence of the validity of the findings which have a subjective component. The reported exposure to gas, fumes and odours, is noteworthy even though expected; the six-fold difference between JT and TR is highly significant statistically and there is also a decreasing gradient from JT to NA to TR. Clearly, the residents of the Junction Triangle experience markedly greater discomfort in their own residential areas than do the residents of the most comparable area in Toronto. It did not require a survey to establish this fact, but its confirmation and quantification within the survey is important. It is not desirable that residents in any particular area of an urban community should experience appreciably greater discomfort than those living in normative areas of the same city.

Health indicators of children. The 14 health status indicators we measured in children are summarized in Table 14.1. In contrast to adults, the profile for children is not so reassuring except that chronic, serious problems did not affect them in a material way. We declared, in advance, that the two-week prevalence of cardinal symptoms was a priority variable, and the cardinal symptoms chosen were among those most probably associated with the chemical substances detected in the environment of Junction Triangle. The differences in the two-week prevalence rates of such symptoms among children in the JT and TR areas were clinically and statistically significant and there was a clear gradient from the JT to the NA to the TR. The difference in the less sensitive one-year prevalence of cardinal symptoms diminishes to less than the declared clinically significant threshold, but it remains statistically significant and the gradient is still apparent. Moreover, a trend that did not favour the children of the Junction Triangle was observed when a more comprehensive set of 12 symptoms was examined at two-week and one-year prevalence rates. In both cases, the gradient persisted and the differences in the one-year prevalence rates were statistically significant. A less marked trend was also observed in the prevalence of probed health problems.

There were either no differences or slightly favourable trends in the other variables. Indicators of disability, debility, and school absenteeism showed no differences and there was no difference in the use of doctors, health professionals in general, or of health facilities such as hospitals. There was, however, an upward trend in the use of nurses, presumably public health nurses, which is compatible with the probability that the parents of children with the cardinal symptoms would initiate their use of health resources by consulting nurses first, especially at school. It may

also reflect a more aggressive pattern of intervention by public health nurses in the JT area, given the known concerns about health of the residents.

We conclude that there is enough evidence of unfavourable health experience among children in the Junction Triangle area to warrant more in depth and more clinical evaluation of their health status.

Conclusions on Cause and Effect

The cross-sectional design of this study does not permit attribution of observed health outcomes to exposure factors in the same community. Our findings strongly indicate that adults living in the Junction Triangle and in the most comparable non-industrial census tract of Toronto, have similar experiences regarding health. No further studies are warranted among adults. Moreover, given the expressed concerns about the reproductive experience of women in the area, it is particularly important to note that they seem better off than women in the comparison area. There were very few cases of cancer, but our sampling techniques were inadequate to study cancer and no conclusions can be reached in this regard. Cardinal symptoms, declared as a special concern, in advance, were found to be an appreciable, clinically important and statistically significant problem among children. Further work that might rule in or rule out a causal association with industrial emissions should be pursued but it should be geared primarily to the health promotion, health protection and health maintenance of the children in the area. While establishing «whether anyone or anything is at fault» is important, such efforts should be subordinate to the process of ensuring that the children of the Junction Triangle enjoy the highest attainable level of health. It is their right and the right of their parents. The children living in the areas neighbouring the Junction Triangle that we studied exhibited

sufficiently high frequencies of the selected cardinal symptoms that they should be included in health promotion initiatives.

RECOMMENDATIONS

1. The Department of Public Health of the City of Toronto should organize a comprehensive health promotion programme for children of the Junction Triangle and neighbouring areas. This initiative, which could be coordinated by the Western Health Area office, should deploy public health nurses, primary care medical practitioners, paediatricians and any relevant resources of the Hospital for Sick Children of Toronto to conduct an in-depth study of the health of children of the Junction Triangle area of the City. There should be no sampling; all children should be eligible for this programme. Special efforts should be concentrated on children 9 years and under.
2. Even though adults did not have adverse health indicators compared to residents of comparable areas of Toronto in un-exposed areas, it has been confirmed that their perception of discomfort in relation to gases, fumes and odours is high. The City of Toronto, the Ontario Ministry of the Environment, and other relevant governmental provincial ministries, and authorities should establish guidelines for industry that strive not only to minimize the risk of health to children but to sharply reduce imposed factors on a population that diminish quality of life.

3. The governments of the Province of Ontario and of the City of Toronto should commission the Ontario Cancer Treatment and Research Foundation to undertake a study to exclude the possibility that cancer adversely affects the citizens of Junction Triangle and neighbouring areas compared to Toronto as a whole.

RESEARCH TEAM

Steering Committee

Research design and implementation decisions were made at regularly held meetings of the Steering Committee composed of:

Dr. Walter O. Spitzer, Principal Investigator

Dr. A.S. Macpherson, Medical Officer of Health, City of Toronto, Chairman

Ms. Lynn Elinson, Epidemiologist, City of Toronto Department of Public Health

Mr. James M. Flaherty, Environmental Health and Inspection Services Manager, Western Health Area of the City of Toronto Department of Public Health

Ms. Brenda Spaulding, Coordinator of Feasibility and Initial Planning

Ms. Terry Germanson, Project Coordinator

Dr. B. Kawa, Physician, Western Health Area of the City of Toronto Department of Public Health

Dr. O.M. Rampersaud, Associate Medical Officer of Health and Executive Officer, Western Health Area of the City of Toronto Department of Public Health

Consultants

Dr. Lily Eastridge, City of Toronto Department of Public Health, was responsible for developing the survey instrument and the interviewer's manual and for supervising the field work.

Dr. Robert Murdie, Department of Geography at York University, Toronto, developed the method of selecting comparable census tracts and recommended the most comparable to the Steering Committee.

Ms. Stephanie Shenker, Research Associate in the Division of Clinical Epidemiology, Montreal General Hospital, consulted on questionnaire development, research design and statistical analysis.

Dr. Samy Suissa, Biostatistician, Department of Epidemiology and Health, McGill University, determined sample sizes and the sampling scheme, and coordinated the statistical analysis of the survey data.

Acknowledgements

We gratefully acknowledge the assistance of Ms. Debbie Owen, Administrative Secretary, in the coordination of the field work and management. We also acknowledge the invaluable assistance of the interviewers, coders, secretarial staff, employees of the City of Toronto Department of Public Health, City of Toronto officials, community members and respondents. To all those who contributed their time, effort and support, we extend our sincere thanks for a job well done.

APPENDIX 1

QUESTIONNAIRE IN ENGLISH

SURVEY QUESTIONNAIRE

ID number _____

Batch number _____

Respondent's name _____

address _____

Proxy's name _____

address _____
(If different than respondent's)

Interviewer's ID _____

RECORD OF CONTACTS, TIME					
Contact No.	Date		Contact Time		COMMENTS
	Day	Month	Start	Finish	
1					
2					
3					
4					

HEALTH SURVEY

INFORMED CONSENT FORM

I understand that as part of this survey all medical conditions I have reported during this interview will, with my consent, be confirmed as to the medical diagnoses and onset of illness. This information will be obtained from my medical doctors and/or my OHIP files, and/or hospital(s).

I understand that my consent will be a valuable contribution to ways of making survey results more reliable.

I understand that I am free to refuse or sign this consent without jeopardizing the confidentiality of the information I have given during the interview or to my future health care.

I therefore agree to give Dr. Walter O. Spitzer or his delegate permission to obtain the above information from Dr. _____. Address _____. Tel. No. _____ and/or from my OHIP files, and or hospital(s).

Signed _____ Date _____

My OHIP number is _____

Witness to signature _____

Signed _____

Date _____

THE HEALTH PROBLEM RECORDING FORM

ID Number: ☐☐☐☐

Transcribe ID Number from front page of questionnaire

HEALTH PROBLEM	QUESTION NUMBER(S)	PROBED

ENTER IN THIS FORM HEALTH PROBLEMS FROM:

Q No.	Page No.
2a)	1
13b)	7
14c)	8
15b)	8
19b)	12
23	14
26	14
29	15
32	15
35	16
38	16
41	17
44	17
51b)	19

If a health problem has already been reported in a previous question and has already been entered in your form, do not repeat the name of the healt problem, enter only the question No.

LINE NUMBER [1]

ID NUMBER [ ][ ][ ][ ] 2-5

BATCH NUMBER [ ][ ] 6-7

DATE OF ENTRY [ ][ ][ ][ ] 8-11

INTERVIEWER'S ID [ ][ ] 12-13

COMPLETION CODE [ ] 14

TIME INTERVIEW BEGINS _____ AM / PM

HAND CALENDAR TO RESPONDENT AND SAY:

The next few questions refer to the past 2 weeks. These 2 weeks are outlined on this calendar.

*Q1. What did you do most of the time in the past two weeks? (choose only one)

Baby under 1	1	Housework	5	[ ] 15
Child 1-6	2	Retired	6	
School	3	Unemployed	7	
Working	4	Other, specify:	8	

_____

_____

Q2. During the last two weeks, have you had any health problems?

No 1 ——→ GO TO Q5 Yes 2 [ ] 16

**2A) What was the main health problem? _____ [ ][ ][ ][ ] 17-20

_____

_____

Q3. Did you see or talk to a health professional about this problem?

No 1 Yes 2 [ ] 21

Q4. Did you spend one or more nights in a hospital, nursing home or convalescent home because of this problem?

No 1 Yes 2 [ ] 22

LINE NO. 1

SECTION II - SYMPTOMS.

COLUMN NUMBER

*Q5. In the last 12 months, how often have you had any of the following?

	Don't know	Every day	Almost every day	Once a week	Once a month	Less than once a month	Never	
A) Itchy, burning or running nose NOT due to a cold?	8	5	4	3	2	1	0	2
B) Trembling or unsteadiness of the hands?	8	5	4	3	2	1	0	2
C) Burning or itching of the skin?	8	5	4	3	2	1	0	25
D) Tingling in the hands, feet, fingers or toes?	8	5	4	3	2	1	0	2
E) Irritation of the throat NOT due to a cold?	8	5	4	3	2	1	0	27
F) Tiredness or fatigue which limits usual work or recreational activities?	8	5	4	3	2	1	0	2
G) Loss of feeling in the hands, fingers or toes?	8	5	4	3	2	1	0	2
H) Itching, burning or watering of the eyes?	8	5	4	3	2	1	0	30
I) Feeling of suffocation or feeling you cannot breathe?	8	5	4	3	2	1	0	31
J) Sick to your stomach or nausea?	8	5	4	3	2	1	0	32
K) Weakness in the hands, feet, fingers or toes?	8	5	4	3	2	1	0	3
L) Shortness of breath when you walk up a slight hill or upstairs?	8	5	4	3	2	1	0	34

LINE NO. 1

COLUMN NUMBER

IF NO SYMPTOMS REPORTED IN Q5, GO TO Q9, P. 7.

I would now like to ask you some more questions about the problems you just mentioned.

Q6. How long have you had:

	2 weeks or less	2 weeks to 6 months	7 months to 1 year	1 year to 5 years	5 years to 10 years	Over 10 years	
A) Itchy, burning or running nose NOT due to a cold?	1	2	3	4	5	6	[
B) Trembling or unsteadiness of the hands?	1	2	3	4	5	6	[
C) Burning or itching of the skin?	1	2	3	4	5	6	[
D) Tingling in the hands, feet, fingers or toes?	1	2	3	4	5	6	[
E) Irritation of the throat NOT due to a cold?	1	2	3	4	5	6	[
F) Tiredness or fatigue which limits usual work or recreational activities?	1	2	3	4	5	6	[
G) Loss of feeling in the hands, fingers or toes?	1	2	3	4	5	6	[
H) Itching, burning or watering of the eyes?	1	2	3	4	5	6	[
I) Feeling of suffocation or feeling you cannot breathe?	1	2	3	4	5	6	[
J) Sick to your stomach or nausea?	1	2	3	4	5	6	[
K) Weakness in the hands, feet, fingers or toes?	1	2	3	4	5	6	[
L) Shortness of breath when you walk up a slight hill or upstairs?	1	2	3	4	5	6	[

LINE NO. 1

COLUMN NUMBER

Q6X. When was the last time you had:

A) Itchy, burning or running nose NOT due to a cold? _____ 47-48

B) Trembling or unsteadiness of the hands? _____ 49-50

C) Burning or itching of the skin? _____ 51-52

D) Tingling in the hands, feet, fingers or toes? _____ 53-54

E) Irritation of the throat NOT due to a cold? _____ 55-56

F) Tiredness or fatigue which limits usual work or recreational activities? _____ 57-58

G) Loss of feeling in the hands, fingers or toes? _____ 59-60

H) Itching, burning or watering of the eyes? _____ 61-62

I) Feeling of suffocation or feeling you cannot breathe? _____ 63-64

J) Sick to your stomach or nausea? _____ 65-66

K) Weakness in the hands, feet, fingers or toes? _____ 67-68

L) Shortness of breath when you walk up a slight hill or upstairs? _____ 69-70

COLUMN NUMBER

LINE NUMBER [2] 1

ID NUMBER [ ][ ][ ][ ] 2-5

Q7. Are you presently receiving medical care for:
(Seeing a medical doctor and/or taking medications)

	No	Yes	Don't know	
A) Itchy, burning or running nose NOT due to a cold?	1	2	8	[ ] 6
B) Trembling or unsteadiness of the hands?	1	2	8	[ ] 7
C) Burning or itching of the skin?	1	2	8	[ ] 8
D) Tingling in the hands, feet, fingers or toes?	1	2	8	[ ] 9
E) Irritation of the throat NOT due to a cold?	1	2	8	[ ] 10
F) Tiredness or fatigue which limits usual work or recreational activities?	1	2	8	[ ] 11
G) Loss of feeling in the hands, fingers or toes?	1	2	8	[ ] 12
H) Itching, burning or watering of the eyes?	1	2	8	[ ] 13
I) Feeling of suffocation or feeling you cannot breathe?	1	2	8	[ ] 14
J) Sick to your stomach or nausea?	1	2	8	[ ] 15
K) Weakness in the hands, feet, fingers or toes?	1	2	8	[ ] 16
L) Shortness of breath when you walk up a slight hill or upstairs?	1	2	8	[ ] 17

COLUMN NUMBER

Q8. When did you last see or talk to a health professional about:

	In the last 2 weeks	During the last 12 months	1 to 2 years ago	2 to 5 years ago	More than 5 years ago	Never	Don't know	
A) Itchy, burning or running nose NOT due to a cold?	1	2	3	4	5	6	8	
B) Trembling or unsteadiness of the hands?	1	2	3	4	5	6	8	
C) Burning or itching of the skin?	1	2	3	4	5	6	8	
D) Tingling in the hands, feet, fingers or toes?	1	2	3	4	5	6	8	
E) Irritation of the throat NOT due to a cold?	1	2	3	4	5	6	8	
F) Tiredness or fatigue which limits usual work or recreational activities?	1	2	3	4	5	6	8	
G) Loss of feeling in the hands, fingers or toes?	1	2	3	4	5	6	8	
H) Itching, burning or watering of the eyes?	1	2	3	4	5	6	8	
I) Feeling of suffocation or feeling you cannot breathe?	1	2	3	4	5	6	8	
J) Sick to your stomach or nausea?	1	2	3	4	5	6	8	
K) Weakness in the hands, feet, fingers or toes?	1	2	3	4	5	6	8	
L) Shortness of breath when you walk up a slight hill or upstairs?	1	2	3	4	5	6	8	

Q9. Do you wear prescribed eyeglasses?

No 1 Yes 2 ☐ 30

Q10. Do you wear contact lenses?

No 1 ⟶ GO TO Q13 Yes 2 ☐ 31

Q11. For how long have you worn contact lenses?

Under 1 year 1 A year 2 Over 1 year 3 ☐ 32

Q12. Do you wear soft or hard contact lenses?

Hard 1 ⟶ GO TO Q13 Soft 2 ☐ 33

Q12A) Do you get eye problems while wearing contact lenses?

No 1 ⟶ GO TO Q13 Yes 2 ☐ 34

Q12B) Has your eye doctor told you to wear hard contact lenses or eyeglasses instead?

No 1 Yes 2 ☐ 35

SECTION III - TIME-BASED DISABILITY

The following questions refer to your health over the <u>past 2 weeks</u>.

Q13. During the <u>past 2 weeks</u>, did you stay in bed at all because of your health?

No 1 ⟶ GO TO Q14 Yes 2 ☐ 36

*Q13A) How many days did you stay in bed for all or most of the day, including any nights spent as a patient in a hospital? ____ ☐☐ 37-38

**Q13B) What was <u>the main health problem</u> which caused you to stay in bed?

_____

_____ ☐☐☐☐ 39-42

LINE NUMBER 2

COLUMN NUMBER

You told me at the very beginning that you have _____ (activity status) most of the time during the past two weeks.

IF WORKING, HOUSEWORK OR SCHOOL, AS Q14 USING APPROPRIATE ACTIVITY STATUS. OTHERWISE ASK Q 15.

Q14. During the past 2 weeks, did your health keep you from _____ (activity status) at all?

No 1 ⟶ GO TO Q15 Yes 2 ☐ 43

Q14A) How many days did illness or injury keep you from _____ (activity status) for all or most of the day? ____ ☐☐ 44-45

Q14B) On how many of those days lost from _____ (activity status) did you stay in bed for all or most of the day? ____ ☐☐ 46-47

**Q14C) What was the main health problem which caused you to miss _____ (activity status)?

_____

_____ ☐☐☐☐ 48-51

*Q15. (Not counting the days mentioned earlier) Were there any (other) days during the last 2 weeks that you cut down on things you usually do because of your health?

No 1 ⟶ GO TO Q 16 Yes 2 ☐ 52

Q15A) Again, not counting the days in bed and days lost from _____ (activity status), how many days did you cut down for all or most of the day? ____ ☐ 53

**Q15B) What was the main problem which caused you to cut down?

_____

_____ ☐☐☐☐ 54-57

LINE NUMBER 2

COLUMN NUMBER

SECTION IV - HEALTH CARE UTILIZATION

Q16. During the <u>past 2 weeks</u>, did you see or talk to any of the following health professionals about your health?

Q16A) A medical doctor?

No 1 ⟶ GO TO Q 16B

Yes 2 ☐ 58

↓

AA) How many times? ___ ☐☐ 59-60

Q16B) A dentist?

No 1 ⟶ GO TO Q16C

Yes 2 ☐ 61

↓

BB) How many times? ___ ☐☐ 62-63

Q16C) A nurse?

No 1 ⟶ GO TO Q16D

Yes 2 ☐ 64

↓

CC) How many times? ___ ☐☐ 65-66

Q16D) A pharmacist or druggist for advice?

No 1 ⟶ GO TO Q16E

Yes 2 ☐ 67

↓

DD) How many times? ___ ☐☐ 68-69

COLUMN NUMBER

LINE NUMBER ☐ 3 1

ID NUMBER ☐☐☐☐ 2-5

Q16E) An optometrist or optician?

No 1 ⟶ GO TO Q16F

Yes 2 ☐ 6

↓

EE) How many times? ___ ☐☐ 7-8

Q16F) A chiropractor?

No 1 ⟶ GO TO Q16G Yes 2 [ ] 9

FF) How many times? ____ [ ][ ] 10-11

Q16G) A psychologist, social worker or other counsellor?

No 1 ⟶ GO TO Q16H Yes 2 [ ] 12

GG) How many times? ____ [ ][ ] 13-14

*Q16H) Any other health professional? Specify: _____

_____

No 1 ⟶ GO TO Q17 Yes 2 [ ] 15

HH) How many times? ____ [ ][ ] 16-17

Q17. During the past 12 months, how many times did you see or talk to any of the following health professionals about your health?

Q17A) A medical doctor?

None 00 Number of times: ____ [ ][ ] 18-19

AA) How long has it been since you last saw or talked to a medical doctor about your health?

Number of years: ____ [ ][ ] 20-21

Q17B) A dentist?

None 00 Number of times: ____ [ ][ ] 22-23

BB) How long has it been since you last saw or talked to a dentist?

Number of years: ____ [ ][ ] 24-25

Q17C) A nurse?

None 00 Number of times: ____ [ ][ ] 26-27

LINE NUMBER 3

COLUMN NUMBER

Q17D) A pharmacist or druggist for advice?

None 00 Number of times: ____ 28-29

Q17E) An optometrist or optician?

None 00 Number of times: ____ 30-31

Q17F) A chiropractor?

None 00 Number of times: ____ 32-33

Q17G) A psychologist, a social worker or any other health professional?

Specify _____

None 00 Number of times: ____ 34-35

*Q18. In the past 12 months, were you a patient in a hospital, a nursing home or a convalescent home?

Check appropriate box(es)

Hosp ☐ - 2
Nur. ☐ - 3
Conv. ☐ - 4

No 1 ⟶ GO TO Q 19 36

*Q18A) How many times were you in a hospital, nursing home or a convalescent home in the last 12 months?

Number of times: ____ 37-38

Q18B) How many nights did you spend in a hospital, a nursing home or a convalescent home in the last 12 months?

Number of nights: ____ 39-40

Q18C) How many of these nights were in the last 6 months?

Number of nights: ____ 41-42

Q18D) How many of these nights were in the last 2 weeks?

Number of nights: ____ 43-44

COLUMN NUMBER

SECTION V - ACCIDENTS

The next few questions refer to accidents which resulted in an injury that affected your health or limited your normal activities in any way.

Q19. During the last 12 months have you had any accidents of this type?

No 1 ⟶ GO TO Q20 Yes 2 ☐ 45

Q19A) How many accidents of this type did you have in the past 2 weeks?

If none '00' ⟶ Go to Q20 Number of accidents: ☐☐ 46-47

**Q19B) For the most serious accident that occurred in the last 2 weeks, what was the main injury or health problem that resulted from this accident?

_____

_____ ☐☐☐☐ 48-51

Q19C) Where did this accident occur?

At home (inside)	1	At work	5
At home (outside)	2	At school	6
Street or highway	3	At place of recreation	7
Public sidewalk	4	Other	8

☐ 52

_____

SECTION VI - DRUG USE

*Q20. Yesterday or the day before, did you take or use any of the following:

01. Pain relievers, such as aspirin?

No 1 Yes 2 ☐ 53

02. Tranquilizers, medicine for the nerves or medicine to help you sleep?

No 1 Yes 2 ☐ 54

03. Medicine for the heart or blood pressure?

No 1 Yes 2 ☐ 55

04. Antibiotics such as penicillin?

No 1 Yes 2 ☐ 56

05. Stomach remedies or medicine?

No 1 Yes 2 ☐ 57

06. Laxatives?

No 1 Yes 2 ☐ 58

07. Cough or cold remedies?

No 1 Yes 2 ☐ 59

08. Skin ointments or salves?

No 1 Yes 2 ☐ 60

09. Vitamins or minerals?

No 1 Yes 2 ☐ 61

10. Eye drops?

No 1 Yes 2 ☐ 62

11. Any other medication?
Specify: _____ ☐ 63

No 1 Yes 2

LINE NUMBER [4] 1

IF NO MEDICATIONS INDICATED IN Q20, GO TO Q45, P. 18
OTHERWISE ASK THE FOLLOWING FOR EACH MEDICATION INDICATED.
BEGIN AT TOP OF LIST, ENTER DRUG CODE 1-11.

ID NUMBER [ ][ ][ ] 2-5

FIRST MEDICATION

Q21A) Drug code: ____ [ ][ ] 6-7

Q21. Was this _____ (medication) obtained on the advice of a medical doctor?

No 1 Yes 2 [ ] 8

Q22. Over the past month, have you taken this at least once every week?

No 1 Yes 2 [ ] 9

**Q23. What is the main health problem for which you took this medication?

_____ [ ][ ][ ][ ] 10-13

_____

SECOND MEDICATION

Q24A) Drug code: ____ [ ][ ] 14-15

Q24. Was this _____ (medication) obtained on the advice of a medical doctor?

No 1 Yes 2 [ ] 16

Q25. Over the past month, have you taken this at least once every week?

No 1 Yes 2 [ ] 17

**Q26. What is the main health problem for which you took this medication?

_____ [ ][ ][ ][ ] 18-21

_____

LINE NUMBER 4

COLUMN NUMBER

THIRD MEDICATION

Q27A) Drug code: ____ 22-23

Q27. Was this _____ (medication) obtained on the advice of a medical doctor?

No 1 Yes 2 24

Q28. Over the past month, have you taken this at least once every week?

No 1 Yes 2 25

**Q29. What is the main health problem for which you took this medication?

_____ 26-29

_____

FOURTH MEDICATION

Q30A) Drug code: ____ 30-31

Q30. Was this _____ (medication) obtained on the advice of a medical doctor?

No 1 Yes 2 32

Q31. Over the past month, have you taken this at least once every week?

No 1 Yes 2 33

**Q32. What is the main health problem for which you took this medication?

_____ 34-37

_____

COLUMN NUMBER

FIFTH MEDICATION

Q33A) Drug code: ____ ☐☐ 38-39

Q33. Was this _____ (medication) obtained on the advice of a medical doctor?

No 1 Yes 2 ☐ 40

Q34. Over the past month, have you taken this at least once every week?

No. 1 Yes 2 ☐ 41

**Q35. What is the main health problem for which you took this medication?

_____ ☐☐☐☐ 42-45

_____

SIXTH MEDICATION

Q36A) Drug code: ____ ☐☐ 46-47

Q36. Was this _____ (medication) obtained on the advice of a medical doctor?

No 1 Yes 2 ☐ 48

Q37. Over the past month, have you taken this at least once every week?

No. 1 Yes 2 ☐ 49

**Q38. What is the main health problem for which you took this medication?

_____ ☐☐☐☐ 50-53

_____

LINE NUMBER 4

COLUMN NUMBER

SEVENTH MEDICATION

Q39A) Drug code: ____ [ ][ ] 54-55

Q39. Was this _____(medication) obtained on the advice of a medical doctor?

No 1 Yes 2 [ ] 56

Q40. Over the past month, have you taken this at least once every week?

No 1 Yes 2 [ ] 57

**Q41. What is the main health problem for which you took this medication?

_____ [ ][ ][ ][ ] 58-61

_____

EIGHTH MEDICATION

Q42A) Drug code: ____ [ ][ ] 62-63

Q42. Was this _____ (medication) obtained on the advice of a medical doctor?

No 1 Yes 2 [ ] 64

Q43. Over the past month, have you taken this at least once every week?

No 1 Yes 2 [ ] 65

**Q44. What is the main health problem for which you took this medication?

_____ [ ][ ][ ][ ] 66-69

_____

COLUMN NUMBER

LINE NUMBER [5] 1

ID NUMBER [ ][ ][ ][ ] 2-5

SECTION VII - ACTIVITY LIMITATION

CHECK ACTIVITY STATUS OF RESPONDENT IN Q1, SECTION 1 AND ASK THE APPROPRIATE QUESTIONS

If activity status is:	Go to question no.:
- Baby under 1	50
- Child 1-6	45
- School	49
- Working	47
- Housework	48
- Retired, unemployed or other	46

The next few questions refer to any limitation you may have because of your health.

Q45A) Is _____ able to take part at all in ordinary play with other children?

No 1 ⟶ GO TO Q51A) Yes 2 [ ] 6

*Q45B) Is _____ limited in the kind or amount of play _____ can participate in because of his (her) health?

No 1 ⟶ GO TO Q50A) Yes 2 ⟶ GO TO Q51A) [ ] 7

Q46A) Does your health now keep you from _____?

No 1 Yes 2 ⟶ GO TO Q51A) [ ] 8

Q46B) Are you limited in the kind or amount of activities you can do because of your health?

No 1 ⟶ GO TO Q50A) Yes 2 ⟶ GO TO Q51A) [ ] 9

Q47. Are you limited in the kind or amount of work you can do because of your health?

No 1 ⟶ GO TO Q50A) Yes 2 ⟶ GO TO Q51A) [ ] 10

LINE NUMBER 5

COLUMN NUMBER

Q48. Are you limited in the kind or amount of housework you can do because of your health?

No - 1 ⟶ GO TO Q50A) Yes 2 ⟶ GO TO Q51A) 11

Q49A) Do you have to go to a certain type of school because of your health?

No 1 Yes 2 ⟶ GO TO Q51A) 12

↓

*Q49B) Are you limited in school attendance because of your health?

No 1 Yes 2 ⟶ GO TO Q51A) 13

↓

Q50A) Are you limited in any way because of your health?
(Is _____ limited in any way because of his (her) health?)

No 1 ⟶ GO TO Q52 Yes 2 14

↓

*Q50B) In what way are you limited? (In what way is he or she limited?)

_____ 15-16

_____

Q51A) How long have you: been limited...?
been unable to ...?
had to go to a special school?

Since birth 91 17-18

Time _____ 19-20

**Q51B) What is the main health problem which caused this disability? 21-24

_____

_____

SECTION IX - HEALTH PROBLEM PROBES

SCAN HEALTH PROBLEM RECORDING FORM AND CHECK THAT ALL HEALTH PROBLEMS HAVE BEEN UNDUPLICATED.
COMPLETE ONE PROBE FOR EACH UNIQUE HEALTH PROBLEM.
BEGIN BY COPYING: PROBLEM, QUESTION NUMBER(S) FROM HEALTH PROBLEM RECORDING FORM.
IF NO HEALTH PROBLEMS RECORDED IN YOUR HEALTH PROBLEM RECORDING FORM, GO TO Q59. p.28.

PROBE 1

Q52. Health problem: _____ ☐☐☐ 25-28

Question number(s): _____

I would like to ask some further questions on the health problems you mentioned earlier.

Q52A) How long have you had _____ (health problem)?

2 weeks or less	1	5 years to 10 years	5
2 weeks to 1 month	2	More than 10 years	6
1 month to 1 year	3	Don't know	8
1 year to 5 years	4		

☐ 29

Q52B) When did you last see or talk to a health professional about your _____ (health problem)?

During the last 12 months	1	More than 5 years ago	4
1 to 2 years ago	2	Never	5
2 to 5 years ago	3	Don't know	8

☐ 30

LINE NUMBER 5

COLUMN NUMBER

IF THE RESPONDENT HAS SEEN A HEALTH PROFESSIONAL DURING THE LAST 12 MONTHS ⟶ GO TO Q52D

OTHERWISE ⟶ And skip Q52D and Q52E

Q52C) What is the main reason that you had not seen a health professional recently about your _____ (health problem)?

Problem not serious enough	1	Under control	4
Costs too much	2	Other	5
Takes too much time	3	Don't know	8

☐ 31

Q52D) Are you under a medical doctor's care on a regular basis for your _____ (health problem)?

No 1 Yes 2

☐ 32

Q52E) During the last 6 months, how many nights have you spent in a hospital because of this problem?

_____

☐☐☐ 33-35

PROBE 2

Q53. Health problem: _____

☐☐☐☐ 36-39

Question number(s): _____

Q53A) How long have you had _____ (health problem)?

2 weeks or less	1	5 years to 10 years	5
2 weeks to 1 month	2	More than 10 years	6
1 month to 1 year	3	Don't know	8
1 year to 5 years	4		

☐ 40

Q53B) When did you last see or talk to a health professional about your _____ (health problem)?

During the last 12 months	1	More than 5 years ago	4
1 to 2 years ago	2	Never	5
2 to 5 years ago	3	Don't know	8

☐ 41

IF THE RESPONDENT HAS SEEN A HEALTH PROFESSIONAL DURING THE LAST 12 MONTHS ——→ GO TO Q53D

OTHERWISE ——→ And skip Q53D and Q53E

Q53C) What is the main reason that you had not seen a health professional recently about your _____?

Problem not serious enough	1	Under control	4
Costs too much	2	Other	5
Takes too much time	3	Don't Know	8

☐ 42

Q53D) Are you under a medical doctor's care on a regular basis for your _____ (health problem)?

No	1	Yes	2

☐ 43

Q53E) During the last 6 months, how many nights have you spent in a hospital because of this problem?

_____

☐☐☐ 44-46

LINE NUMBER 5

COLUMN NUMBER

PROBE 3

Q54. Health problem: _____ 47-50

Question number(s): _____ _____

Q54A) How long have you had _____ (health problem)?

2 weeks or less	1	5 years to 10 years	5	51
2 weeks to 1 month	2	More than 10 years	6	
1 month to 1 year	3	Don't know	8	
1 year to 5 years	4			

Q54B) When did you last see or talk to a health professional about your _____ (health problem)?

During the last 12 months	1	More than 5 years ago	4	52
1 to 2 years ago	2	Never	5	
2 to 5 years ago	3	Don't Know	8	

IF THE RESPONDENT HAS SEEN A HEALTH PROFESSIONAL DURING THE LAST 12 MONTHS ⟶ GO TO Q54D)

OTHERWISE ⟶ And skip Q54D and Q54E

Q54C) What is the main reason that you had not seen a health professional recently about your _____ (health problem)?

Problem not serious enough	1	Under control	4	53
Costs too much	2	Other	5	
Takes too much time	3	Don't know	8	

Q54D) Are you under a medical doctor's care on a regular basis for your _____ (health problem)?

No	1	Yes	2	54

Q54E) During the last 6 months, how many nights have you spent in a hospital because of this problem?

_____ 55-57

LINE NUMBER 5

COLUMN NUMBER

PROBE 4

Q55. Health problem: _____ ☐☐☐☐ 58-61

Question number(s): _____

Q55A) How long have you had _____ (health problem)?

2 weeks or less	1	5 years to 10 years	5
2 weeks to 1 month	2	More than 10 years	6
1 month to 1 year	3	Don't know	8
1 year to 5 years	4		

☐ 62

Q55B) When did you last see or talk to a health professional about your _____ (health problem)?

During the last 12 months	1	More than 5 years ago	4
1 to 2 years ago	2	Never	5
2 to 5 years ago	3	Don't know	8

☐ 63

IF THE RESPONDENT HAS SEEN A HEALTH PROFESSIONAL DURING THE LAST 12 MONTHS → TO TO Q55D

OTHERWISE → And skip Q55D and Q55E

Q55C) What is the main reason that you had not seen a health professional recently about your _____ (health problem)?

Problem not serious enough	1	Under control	4
Costs too much	2	Other	5
Takes too much time	3	Don't know	8

☐ 64

Q55D) Are you under a medical doctor's care on a regular basis for your _____ (health problem)?

No	1	Yes	2

☐ 65

Q55E) During the last 6 months, how many nights have you spent in a hospital because of this problem?

_____ ☐☐☐ 66-68

COLUMN NUMBER

LINE NUMBER [6] 1

ID NUMBER [ ][ ][ ][ ] 2-5

PROBE 5

[ ][ ][ ][ ] 6-9

Q56. Health problem: _____

Question number(s): _____

Q56A) How long have you had _____ (health problem)?

2 weeks or less	1	5 years to 10 years	5	
2 weeks to 1 month	2	More than 10 years	6	[ ] 10
1 month to 1 year	3	Don't know	8	
1 year to 5 years	4			

Q56B) When did you last see or talk to a health professional about your _____ (health problem)?

During the last 12 months	1	More than 5 years ago	4	
1 to 2 years ago	2	Never	5	[ ] 11
2 to 5 years ago	3	Don't know	8	

IF THE RESPONDENT HAS SEEN A HEALTH PROFESSIONAL DURING THE LAST 12 MONTHS ——→ GO TO Q56D
OTHERWISE

And skip Q56D and Q56E

Q56C) What is the main reason that you had not seen a health professional recently about your _____ (health problem)?

Problem not serious enough	1	Under control	4	
Costs too much	2	Other	5	[ ] 12
Takes too much time	3	Don't know	8	

Q56D) Are you under a medical doctor's care on a regular basis for your _____ (health problem)?

No 1 Yes 2 [ ] 13

Q56E) During the last 6 months, how many nights have you spent in a hospital because of this problem?

[ ][ ] 14-15

--

PROBE 6

Q57. Health problem: _____ 16-19

Question number(s): _____

Q57A) How long have you had _____ (health problem)?

2 weeks or less	1	5 years to 10 years	5	
2 weeks to 1 month	2	More than 10 years	6	20
1 month to 1 year	3	Don't know	8	
1 year to 5 years	4			

Q57B) When did you last see or talk to a health professional about your _____ (health problem)?

During the last 12 months	1	More than 5 years ago	4	
1 to 2 years ago	2	Never	5	21
2 to 5 years ago	3	Don't know	8	

IF THE RESPONDENT HAS SEEN A HEALTH PROFESSIONAL DURING THE LAST 12 MONTHS → GO TO Q57D

OTHERWISE → And skip Q57D and Q57E

Q57C) What is the main reason that you had not seen a health professional recently about your _____ (health problem)?

Problem not serious enough	1	Under control	4	
Costs too much	2	Other	5	22
Takes too much time	3	Don't know	8	

Q57D) Are you under a medical doctor's care on a regular basis for your _____ (health problem)?

No	1	Yes	2	23

Q57E) During the last 6 months, how many nights have you spent in a hospital because of this problem?

_____ 24-25

LINE NUMBER 6

COLUMN NUMBER

PROBE 7

Q58. Health problem: _____ ☐☐☐☐ 26-29

QUESTION NUMBER(s): _____

Q58A) How long have you had _____ (health problem)?

2 weeks or less	1	5 years to 10 years	5	☐ 30
2 weeks to 1 month	2	More than 10 years	6	
1 month to 1 year	3	Don't know	8	
1 year to 5 years	4			

Q58B) When did you last see or talk to a health professional about your _____ (health problem)?

During the last 12 months	1	More than 5 years ago	4	☐ 31
1 to 2 years ago	2	Never	5	
2 to 5 years ago	3	Don't know	8	

IF THE RESPONDENT HAS SEEN A HEALTH PROFESSIONAL DURING THE LAST 12 MONTHS → GO TO Q58D)
OTHERWISE

↓ And skip Q58D and Q58E

Q58C) What is the main reason that you had not seen a health professional recently about your _____ (health problem)?

Problem not serious enough	1	Under control	4	☐ 32
Costs too much	2	Other	5	
Takes too much time	3	Don't know	8	

Q58D) Are you under a medical doctor's care on a regular basis for your _____ (health problem)?

No	1	Yes	2	☐ 33

Q58E) During the last 6 months, how many nights have you spent in a hospital because of this problem?

_____ ☐☐☐ 34-36

SECTION VIII - CHRONIC HEALTH PROBLEMS

Q59. Do you presently have:

01. Problems with eyesight not corrected by glasses?

No 1 Yes 2 DK 8 ☐ 37

02. Anemia?

No 1 Yes 2 DK 8 ☐ 38

03. Asthma?

No 1 Yes 2 DK 8 ☐ 39

04. Hay fever or other allergies?

No 1 Yes 2 DK 8 ☐ 40

05. Arthritis or rheumatism?

No 1 Yes 2 DK 8 ☐ 41

06. Cancer?

No 1 Yes 2 DK 8 ☐ 42

07. Cerebral palsy? (child proxy only)

No 1 Yes 2 DK 8 ☐ 43

08. Diabetes?

No 1 Yes 2 DK 8 ☐ 44

09. Emphysema or chronic bronchitis?

No 1 Yes 2 DK 8 ☐ 45

10. Any emotional disorders? (child proxy only)

No 1 Yes 2 DK 8 ☐ 46

11. Epilepsy?

No 1 Yes 2 DK 8 ☐ 47

12. High blood pressure?

No 1 Yes 2 DK 8 ☐ 48

LINE NUMBER 6

COLUMN NUMBER

13. Heart disease?

No 1 Yes 2 DK 8 [ ] 49

14. Kidney disease?

No 1 Yes 2 DK 8 [ ] 50

15. Stomach ulcer?

No 1 Yes 2 DK 8 [ ] 51

16. Thyroid trouble or goitre?

No 1 Yes 2 DK 8 [ ] 52

17. Recurring migraine headaches?

No 1 Yes 2 DK 8 [ ] 53

18. Missing arms or legs?

No 1 Yes 2 DK 8 [ ] 54

19. Missing fingers or toes?

No 1 Yes 2 DK 8 [ ] 55

20. Paralysis of any kind?

No 1 Yes 2 DK 8 [ ] 56

21. Mental retardation? (child proxy only)

No 1 Yes 2 DK 8 [ ] 57

Excluding any health problems mentioned earlier such as arthritis or paralysis, do you presently have:

22. Trouble with the back or spine?

No 1 Yes 2 DK 8 ☐ 58

23. Trouble with the legs or hips?

No 1 Yes 2 DK 8 ☐ 59

24. Trouble with the arms or shoulders?

No 1 Yes 2 DK 8 ☐ 60

25. Trouble with any other bones or joints?

No 1 Yes 2 DK 8 ☐ 61

Q60. Do you presently have any other long-term illness or impairment?

No 1 → GO TO Q61 Yes 2 ☐ 62

Q60A) What is <u>this health problem</u>?

_____

_____

_____

☐☐☐☐ 63-66

LINE NUMBER 6

COLUMN NUMBER

SECTION X - DEMOGRAPHIC

*Q61. Where were you born? [67-68]

Newfoundland	01	Manitoba	07
Prince Edward Island	02	Saskatchewan	08
Nova Scotia	03	Alberta	09
New Brunswick	04	British Columbia	10
Quebec	05	Yukon or N.W.T.	11
Ontario	06	Other country, specify: _____	

Q61A) When did you first come to live in Canada?

Year _____ [69-70]

COLUMN NUMBER

LINE NUMBER 7 [1]

ID NUMBER [2-5]

Q62. What language or languages did you first learn and use in childhood?

Q62X1)	English	1	[6]
Q62X2)	French	2	[7]
Q62X3)	German	3	[8]
Q62X4)	Italian	4	[9]
Q62X5)	Portuguese	5	[10]
Q62X6)	Other, specify _____		[11-12]

Q62A) What language do you use all or most of the time?

English	1	Italian	4	13
French	2	Portuguese	5	
German	3	Other, specify	6	

_____

Q63. Sex: Male 1 Female 2 14

Q64. Age: _____ 15-16

ASK Q65 ONLY IF 15 YEARS OF OLDER.

Q65. What is your present marital status?

Married (including common law)	1
Widowed	2
Divorced	3
Separated	4
Single (or never married)	5

17

Q66. IF RESPONDENT IS A BABY OR CHILD 6 AND UNDER, ENTER Q HERE → 18

AND GO TO RESIDENTIAL BACKGROUND, Q91, P. 38.

*Q67. What is the highest level of education you have reached?

Highest elementary or secondary grade 19-20

Secondary diploma	1
Some post-secondary	2
Post-secondary certificate or diploma	3
Bachelor's degree or equivalent	4
One or more graduate or professional degrees	5

21

IF THE RESPONDENT IS STILL A STUDENT AND HAS NEVER WORKED → GO TO Q91.

LINE NUMBER 7

COLUMN NUMBER

OCCUPATIONAL BACKGROUND

CHECK ACTIVITY STATUS OF PERSON IN Q1, SECTION 1
ENTER ACTIVITY STATUS: → Q68. ☐ 22
AND ASK APPROPRIATE QUESTION:

IF ACTIVITY STATUS IS		GO TO QUESTION NUMBER
Baby under 1	1	91
Child 1-6	2	91
School	3-if never worked →	91
Working	4	71
Housework	5-if never worked →	91
Unemployed	7	69
Retired	6	70
Other	8	72

IF PREVIOUSLY EMPLOYED OUTSIDE THE HOME OR IF STUDENT PREVIOUSLY EMPLOYED, GO TO Q72.

*Q69. What has been your main occupation or job, the one you have worked at the longest? (Record only ONE occupation, the longest).

_____

_____ ☐☐ 23-24

Q69A) For how long did you work as _____ (occupation)?

Months: _____ ☐☐ 25-26

Years: _____ ☐☐ 27-28

Q69B) What kind of business, industry or service was this?

_____

_____ ☐☐ 29-30

Q69C) What was your job title?

_____ ☐☐ 31-32

*Q69D) What was the address or location?

_____

_____ ☐☐ 33-34

LINE NUMBER 7

COLUMN NUMBER

Q69E) For how long have you been unemployed?

Less than a month 00 35-36

Months: _____ 37-38

Years: _____

Q69F) What do you usually do in your leisure time?

_____ 39-40

_____

GO TO Q72

*Q70. What was your main occupation, the one you worked at the longest?

_____ 41-42

_____

Q70A) For how many years did you work as _____ (occupation)? 43-44

Number of years: _____

Q70B) What kind of industry, business or service was this?

_____ 45-46

_____

*Q70C) What was the address or location?

_____ 47-48

_____

Q70D) What was your job title? 49-50

_____

LINE NUMBER 7

COLUMN NUMBER

Q70E) For how long have you been retired?

Less than a month 00

Months: _____

Years: _____

51-52

53-54

Q70F) What do you do in your leisure time?

_____

_____

55-56

GO TO Q72

Q71. What is your present occupation or job?

_____

_____

57-58

Q71A) What has been your main occupation throughout your lifetime?

_____

_____

59-60

Q71B) For how long have you been employed in your present occupation?

_____

61-62

Q71C) What is your job title?

_____

63-64

*Q71D) What kind of work do you do most of the day?

_____

_____

65-66

Q71E) What is the address or location of job?

_____

_____

67-68

LINE NUMBER 7

COLUMN NUMBER

Q71F) What is it that you like the most about your present job?

_____ _____ 69-70

_____

Q71G) What do you do in your leisure time?

_____ 71-72

_____

COLUMN NUMBER

LINE NUMBER 8 1

ID NUMBER 2-5

Q72. Have you ever worked for a year or more in a job where you were exposed to noise?

No 1 ⟶ GO TO Q76 Yes 2 6

Q72A) At what job or industry? _____ 7-8

_____

Q73. Was exposure to noise:

Mild 1 Moderate 2 Severe 3 9

Q74. Frequent 1 Rare 2 Constant 3 10

Q75. How many years: ____ 11-12

Q76. Have you ever worked for a year or more in a job where you were exposed to dust?

No 1 ⟶ GO TO Q80 Yes 2 13

Q76A) At what job or industry? _____ 14-15

_____

Q77. Was exposure to dust:

Mild 1 Moderate 2 Severe 3 [ ] 16

Q78. Frequent 1 Rare 2 Constant 3 [ ] 17

Q79. For how many years?

_____ [ ][ ] 18-19

Q80. Have you ever worked for a year or more in a job where you were exposed to chemicals or solvents?

No 1→GO TO Q84 Yes 2 [ ] 20

Q80A) At what job or industry? [ ][ ] 21-22

_____

_____

Q81. Was exposure to chemicals or solvents:

Mild 1 Moderate 2 Severe 3 [ ] 23

Q82. Frequent 1 Rare 2 Constant 3 [ ] 24

Q83. For how many years?

_____ [ ][ ] 25-26

Q84. Have you ever worked for a year or more in a job where you were exposed to gas, chemical fumes or smells?

No 1 ⟶ GO TO Q88 Yes 2 [ ] 27

Q84A) At what job or industry? [ ][ ] 28-29

_____

_____

Q85. Was exposure to gas, chemical fumes or smells:

Mild 1 Moderate 2 Severe 3 [ ] 30

Q86. Frequent 1 Rare 2 Constant 3 [ ] 31

Q87. For how many years:

_____ [ ][ ] 32-33

IF Q69D), Q70C), OR Q71E) ARE NOT WITHIN THE BOUNDARIES OF YOUR GIVEN AREA:

Q88. Have you ever worked within the following boundaries:

_____ [9] 34

_____

No 1 → GO TO Q91 YES 2 [ ] 35

Q89. At what job or industry?

_____ [ ][ ] 36-37

_____

Q90. For how long?

_____ [ ][ ] 38-39

RESIDENTIAL BACKGROUND

Q91. For how long have you lived at this address?

_____ [ ][ ][ ] 40-42

Q91A) Where did you live before? Address or location:

_____ [ ][ ] 43-44

Q91B) For how long did you live at that address:

_____ 45-47

FOR CHILD PROXY ——→ GO TO Q92

Q91C) What was the main reason for choosing to move here?

_____ 48-49

_____

Q91D) What do you like the most about your neighbourhood?

_____ 50-51

_____

Q92. Are you exposed to dust and dusty particles in your neighbourhood?

No 1 ——→ GO TO Q93 Yes 2 Don't know 8 52

Q92A) Is this exposure:

Mild 1 Moderate 2 Severe 3 53

FOR CHILD PROXY ——→ GO TO Q95

Q93. When you are at home, are you aware of heavy traffic in the neighbourhood?

No 1 ——→ GO TO Q94 Yes 2 Don't know 8 54

Q93A) Is this exposure:

Mild 1 Moderate 2 Severe 3 55

LINE NUMBER 8

COLUMN NUMBER

Q94. When you are at home, are you aware of gas, chemical fumes or smells in the neighbourhood?

No 1 ⟶ GO TO Q95 Yes 2 Don't know 8 ☐ 56

Q94A) Is this exposure:

Mild 1 Moderate 2 Severe 3 ☐ 57

Q94B) Rare 1 Frequent 2 Constant 3 ☐ 58

IF NO HEALTH PROBLEMS WERE INDICATED, GO TO Q98
IF CHILD PROXY AND NO HEALTH PROBLEMS INDICATED, GO TO Q96

Q95. In your opinion, are any of the symptoms, health conditions or illnesses that you told me you (or the child) have, caused by, worsened by, aggravated by or due to anything in this neighbourhood?

No 1 ⟶ GO TO Q97 Yes 2 Don't know 8 ☐ 59

Q95A) Which health conditions, symptoms or illnesses?

_____ ☐☐☐☐ 60-63

Q95AA) _____ ☐☐☐☐ 64-67

Q95AAA) _____ ☐☐☐☐ 68-71

COLUMN NUMBER

LINE NUMBER ☐ 9 1

ID NUMBER ☐☐☐☐ 2-5

Q95B) In what way are any of these symptoms, health conditions or illnesses that you told me you (or the child) have, caused by, worsened by, aggravated by or due to anything in this neighbourhood?

_____

_____ ☐☐ 6-7

IF HOUSEWIFE WHO HAS NEVER WORKED OUTSIDE THE HOME, GO TO Q97C.

Q96. Relationship of proxy to respondent:

Mother	1
Father	2
Brother, Sister	3
Grandparent	4
Other relatives	5
Not related	6
Don't know	8

☐ 8

FOR CHILD PROXY, END INTERVIEW HERE

Q97. In your opinion, are any of the symptoms, health conditions or illnesses that you told me you have, related to anything in the place where you work (or worked)?

No 1 ⟶ GO TO Q98 Yes 2 Don't know 8 ☐ 9

Q97A) Which health conditions, symptoms or illnesses?

_____ ☐☐☐☐ 10-13

Q97AA) _____ ☐☐☐☐ 14-17

Q97AAA) _____ ☐☐☐☐ 18-21

Q97B) In what way are any of these symptoms, health conditions or illnesses that you told me you have, caused by, worsened by, aggravated by or due to anything in the place where you work?

_____ ☐☐ 22-23

_____

Q97C) Is there anything else you would like to tell me about this?

No 1 Yes 2

If yes, please specify:

_____ ☐ 24

_____

Q98. How many hours a day would you say you spend in this neighbourhood? (Includes time spent at home and at work, if the latter is located within the boundaries of this census tract.)

Number of hours: _____ ☐☐ 25-26

SECTION XI - ALCOHOL CONSUMPTION

HAND RESPONDENT THE CARD ON ALCOHOL CONSUMPTION AND SAY:
This card may help you answer some of the next questions.

I am now going to ask you some quesitons about what alcoholic beverages you drink.

Q99. What do you normally drink:

Beer	1	Go to Q100
Wine	2	
Liquor or mixed drinks	3	
Other _____	4	
Nothing	55	GO TO Q102 and Q103
Don't know	88	
No answer	99	GO TO Q104

27-29

Q100. About how often do you usually drink:

Two or more times a day	1	About once a week	5	
Once a day	2	2 or 3 times a month	6	Go to Q101A
4 to 6 times a week	3	About once a month	7	
2 or 3 times a week	4	Less often than once a month	8	

30

Q100A) In the last week, have you had a drink of beer, wine, liquor or any other alcoholic beverage?

No 1 Yes 2 D.K. 8 N.A. 9

31

Q101. In the average, how many drinks would you usually have a week?

Number/week _____

32

Q101A) Has your drinking habit changed in the last 12 months?

No 1 → Go to Q102 Yes 2 N.A. 9

33

Q101AA) How has it changed:

Drinking more now	001
Drinking less now	002
Other _____	003
_____	
Don't know	008
No answer	009

34-36

Q102. At what age did you have your first drink?

Age _____

37-38

Q103. At what age did you have your last drink?

Age _____

39-40

TOBACCO USE

Q104. Do you smoke a pipe, cigars o cigarillos daily?

No 1 Yes 2 ⟶ GO TO Q108-Q111

41

Q104A) Did you ever smoke any of these daily?

No 1 Yes 2 ⟶ GO TO Q115

42

Q105. Do you smoke cigarettes daily?

No 1 ⟶ GO TO Q113 Yes 2

43

Q106. About how many cigarettes do you now smoke each day?

_____

44-45

Q107. Do you usually smoke filter-tipped cigarettes or use a filter?

No 1 Yes 2

46

Q108. At what age did you start smoking daily?

_____

47-48

LINE NUMBER 9

COLUMN NUMBER

Q109. How far do you usually draw in the smoke?

Only into my mouth	1	Deeply into my chest	4	☐ 49
Into my throat	2	I'm not sure	5	
Partly into my chest	3			

Q110. Has your smoking changed over the last 12 months?

Smoking more now	1	☐ 50
Smoking less now	2	
No change over the last 12 months	3	

Q111. Have you tried stopping during the last 12 months?

No 1 Yes 2 ☐ 51

IF 'YES' IN Q104 ⟶ GO TO Q105

Q112 What brand of cigarettes do you usually smoke?

_____ ☐☐ 52-53

GO TO Q118

Q113. Did you ever smoke cigarettes daily?

No 1 ⟶ GO TO Q 118 Yes 2 ☐ 54

Q114. About how many cigarettes did you usually smoke daily?

_____ ☐☐ 55-56

Q115. At what age did you start smoking daily? _____ ☐☐ 57-58

Q116. At what age did you stop smoking? _____ ☐☐ 59-60

Q117. How far did you usually draw in the smoke?

Only into my mouth	1	Deeply into my chest	4	☐ 61
Into my throat	2	I'm not sure	5	
Partly into my chest	3			

SECTION XII - YOUR FEELINGS

Q118. Here is a list that describes some of the ways people feel at different times. During the <u>past few weeks</u>, how often have you felt:

	Often	Sometimes	Rarely	Never	
A. On top of the world?	1	2	3	4	62
B. Very lonely or remote from other people?	1	2	3	4	63
C. Particularly excited or interested in something?	1	2	3	4	64
D. Depressed or very unhappy?	1	2	3	4	65
E. Pleased about having accomplished something?	1	2	3	4	66
F. Bored?	1	2	3	4	67
G. Proud because someone complimented you on something you had done?	1	2	3	4	68
H. So restless you couldn't sit long in a chair?	1	2	3	4	69
I. That things were going your way?	1	2	3	4	70
J. Upset because someone criticized you?	1	2	3	4	71

Q119. Taking things all together, how would you say things are these days - would you say you are:

Very happy 1 Pretty happy 2 Not too happy 3 72

COLUMN NUMBER

LINE NUMBER [X] 1

ID NUMBER [ ][ ][ ][ ] 2-5

HAND RESPONDENT THE CARD ON MAJOR LIFE EVENTS AND ASK:

Q120. During the last year, did any of the things on this card happen to you:

		No	Yes	Don't know	No answer	
A	Stopped full-time schooling.	1	2	8	9	[ ] 6
B	Lost a job or was unemployed.	1	2	8	9	[ ] 7
C	Got married.	1	2	8	9	[ ] 8
D	Someone moved in with you.	1	2	8	9	[ ] 9
E	Had financial problems.	1	2	8	9	[ ] 10
F	You and your spouse separated.	1	2	8	9	[ ] 11
G	Arrival of a baby at home.	1	2	8	9	[ ] 12
H	Someone moved out of your home.	1	2	8	9	[ ] 13
I	Serious illness.	1	2	8	9	[ ] 14
J	Serious illness of someone dear.	1	2	8	9	[ ] 15
K	Quit or retired from full-time work.	1	2	8	9	[ ] 16
L	Started working or changed jobs.	1	2	8	9	[ ] 17
M	Death of someone close.	1	2	8	9	[ ] 18

Specify (only if volunteered), OTHER ..... [ ] 19

FOR MALE RESPONDENTS GO TO Q128, P. 48.

SECTION XIII - REPRODUCTIVE HISTORY

FOR WOMEN AGES 15 - 49 ONLY

Otherwise Go to Q128

Q121. Have you ever been pregnant?

No 1 ⟶ GO TO Q128 Yes 2 □ 20

Q122. How many times have you been pregnant? _____ □□ 21-22

Q123. Have you ever had a pregnancy confirmed by a test or a doctor that ended in a miscarriage?

No 1 ⟶ GO TO Q124 Yes 2 □ 23

Q123A) When did the miscarriage(s) happen?

Date(s) _____ □ 24

Q123B) Did the miscarriage(s) have any malformations or defects (like missing or extra fingers or toes)?

No 1 ⟶ GO TO Q123D) Yes 2 Don't know 8 □ 25

Q123C) What kind of defects? _____

_____ □□□□ 26-29

Q123D) How many miscarriages have you had? _____ □□ 30-31

Q124. Have you ever had a stillbirth?

No 1 ⟶ GO TO Q125 Yes 2 □ 32

Q124A) When did you have the stillbirth(s)?

Date(s) _____ □ 33

Q124B) How many stillbirths have you had? _____ □□ 34-35

Q124C) Did the **stillbirth(s)** have any malformations or defects?

No 1 ⟶ GO TO Q125 Yes 2 ☐ 36

Q124D) What kind of defects?

_____ ☐☐☐☐ 37-40

_____

Q125. Are you currently pregnant?

No 1 Yes 2 Maybe 3 ☐ 41

Q126. How many children have you had? _____ ☐☐ 42-43

Q127. So, how many pregnancies have you had altogether? _____ ☐☐ 44-45

INCOME (SECTION X CON'T)

HAND RESPONDENT THE CARD ON INCOME LEVELS AND SAY:
Here is a card with various income levels on it. Could you indicate please:

Q128. The letter which most closely corresponds to your present yearly <u>personal</u> income?

_____ ☐☐ 46-47

Q129. Could you indicate the letter which more closely corresponds to your total yearly <u>family</u> income?

_____ ☐☐ 48-49

<u>CODES FOR INCOME LEVELS</u>

01 - A	03 - C	05 - E	07 - G	09 - I
02 - B	04 - D	06 - F	08 - H	99 - NA
				88 - DK

Times at this point of interview _____ AM PM

LINE NUMBER X

COLUMN NUMBER

Thank you for giving us your time and help. We would appreciate your kind cooperation in the event that our supervisors contact you by telephone for further assistance.

Record your impressions of the interview.

_____

_____

_____

Q130. Status of interview:

Completed 1

Broken off 2

Refused 3

Transcribe code from Q130 to COMPLETION CODE on front page of questionnaire.

Why? _____

_____

_____

Date interview completed: _____ DAY _____ MONTH _____ YEAR

Was an interpreter used?

No .....

Yes .....

Interviewer's signature _____

Interviewer's ID number _____